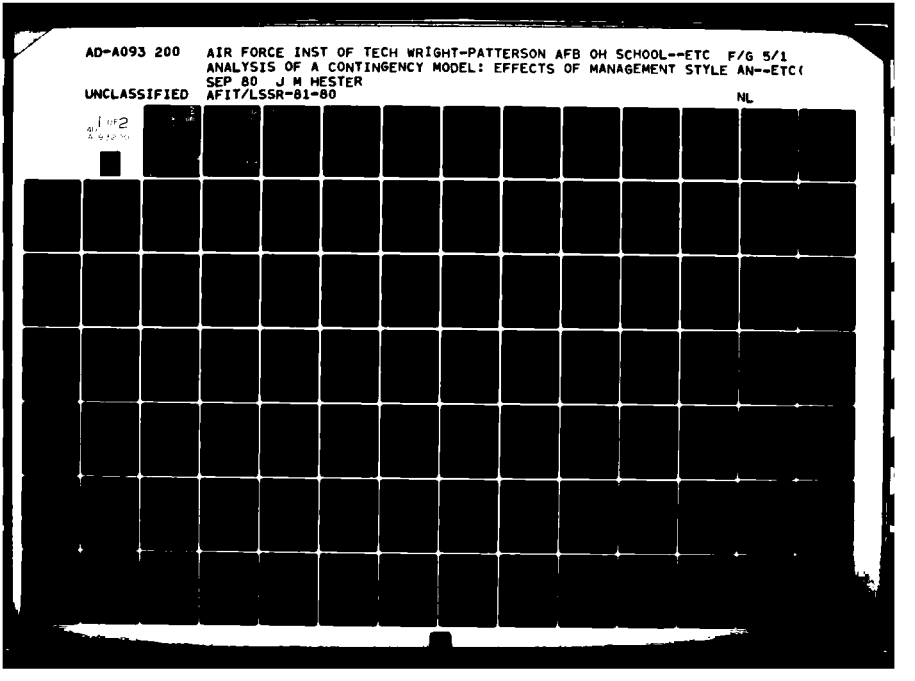
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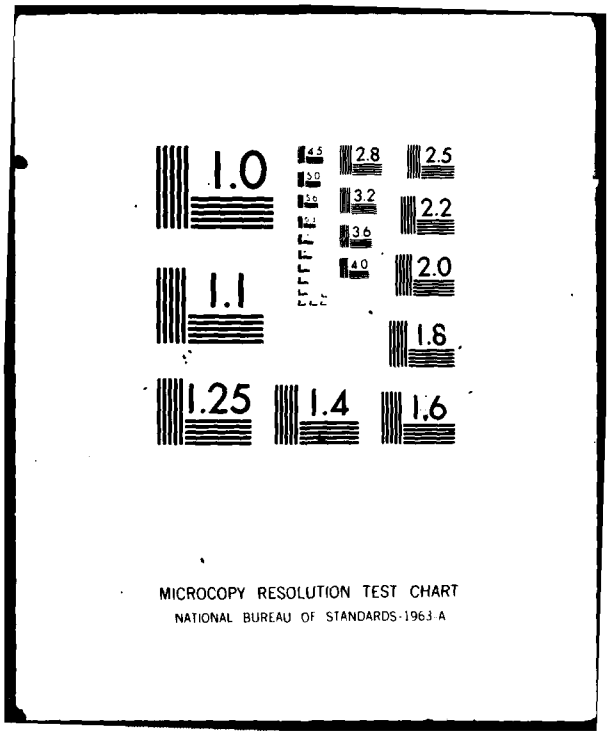
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LEVEL II

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3

LEVEL II

ANALYSIS OF A CONTINGENCY MODEL: EFFECTS OF MANAGEMENT STYLE AND SITUATIONAL ENVIRONMENT ON ORGANIZATIONAL EFFECTIVENESS

John M. Hester, Major, USAF

LSSR 81-80

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

The purpose of this study was to determine if the Organizational Assessment Package (OAP) survey instrument used by the Air Force Leadership and Management Development Center (LMDC) in their Management Consultation Service adequately measures factors which influence the effectiveness of Air Force organizations. The approach to the study was to investigate the conceptual validity of the Three Component Organizational Effectiveness Model which provided the framework for the design of the OAP. Factors extracted from data collected by LMDC using the OAP were used to define profiles of management style and situational environment. Similiar profiles were grouped using cluster analysis. Three management styles were tested with three situational environments in separate analyses of variance using different criteria of effectiveness as dependent variables. The tests indicate that the style of management employed has a measurable affect on the criteria of effectiveness. Different situational environments were also found to have a significant affect. The tests did not support the contingency view of the model. Each test failed to reject the hypothesis of no interaction effect. Due to limitations in the research procedure, the results of the study are considered inconclusive, and opinion must be reserved until a more thorough test has been performed.

LSSR 81-80

ANALYSIS OF A CONTINGENCY MODEL: EFFECTS OF MANAGEMENT STYLE AND SITUATIONAL ENVIRONMENT ON ORGANIZATIONAL EFFECTIVENESS

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Systems Management

By

John M. Hester, BA
Major, USAF

September 1980

This thesis, written by

Major John M. Hester

has been accepted by the undersigned on behalf of the Faculty of the School of Systems and Logistics in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

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William A. Hendrick
COMMITTEE CHAIRMAN

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CHAPTER I

INTRODUCTION

OVERVIEW

Organizational Effectiveness

Organizational performance and effectiveness is a primary concern of Air Force managers at all levels. It is against the concept of effectiveness that managerial and organizational success are ultimately judged. A major managerial concern in today's Air Force is the need to design change-responsive modes of flexibility and adaptation into its organizations to maintain responsiveness to external and internal diversity and change. The bureaucratic structure of military organizations has made them ideally suited to function effectively in a relatively stable and predictable environment. The system of formal controls, specialized roles and tasks, and standardized decision rules which characterize the bureaucratic structure has been challenged by today's dynamic and unpredictable environment of military organizations. Many forces in the environment are accelerating the need for change at an ever increasing rate. Technology is becoming more sophisticated and complex; competition for dwindling resources is increasing; and human values are changing with respect to the work environment and

the role of the military in society. A primary task of Air Force managers is to develop strategies which enable their organizations to identify and cope effectively with significant areas of uncertainty in the changing environment. Managerial strategy must not only respond to demands from the external environment, but must also be consistent with the internal capabilities and climate of the organization. Planned change efforts may be directed at tasks, technologys, or structures in the organization, but ultimately it is people who are affected. Managers must, therefore, adopt a philosophy and strategy for improving the organization's level of adaptation to external change while considering the behavior and needs of employees.

LMDC

Air Force leaders have recognized the need for managerial strategies and organizational structures that could more effectively cope with the dynamic environment of current American society. As a result, in 1975, the Leadership and Management Development Center (LMDC) was created at Maxwell AFB, Alabama, with the task of establishing a comprehensive organization development (OD) program focusing on leadership effectiveness for the United States Air Force. The LMDC mission includes;

> (1) providing instruction and consultation services in the field of leadership, management, and job environment, and

(2) providing better leadership and management education for Air Force personnel on a worldwide basis (LMDC, 1979, p.ii).

LMDC is currently staffed with approximately 230 persons of which 49 are assigned under the Directorate of Management Consultation (Wilkerson, 1979). The Directorate of Management Consultation operates as a management consultation service for commanders and their subordinate managers throughout the Air Force (LMDC, 1979).

LMDC consultants are trained to assist supervisors, at all levels, to enhance organizational effectiveness through a systematic program of planned change. The LMDC Management Consultation process is essentially an action research model of change. Action Research is a systematic data-based,method of problem solving that provides the approach and process for obtaining and using information about an organization. Information is the basis for planning action, taking action, and evaluating action. Constructive change therefore, requires accurate and useful information about how an organization actually functions, how it should ideally function, and how to make it function more like it should. Information is obtained through diagnosis of organizational data collected by the consultant. Diagnosis involves the evaluation of strengths and weaknesses in organizational functioning and the identification of the causes of these conditions. Information obtained guides the selection of change strategies that focus on problem areas.

OAP

Diagnostic data is collected by LMDC consultants by several methods but primarily through the use of a fixed-response questionnaire called the Organizational Assessment Package (OAP). The OAP survey instrument was developed jointly by the Air Force Human Resources Laboratory, Brooks AFB, Texas and LMDC specifically to meet the mission objectives of LMDC. The goals of the OAP in support of the LMDC mission are:

> First, the OAP provides a means of identifying existing strengths and weaknesses within organizational work groups, such as directorates. Second, research results can be fed back into their Professional Military Education; other leadership and management training courses; and when action is required, to Air Staff and functional offices of primary responsibility. Lastly, the OAP data base established can be used for research to strengthen the overall Air Force organizational effectiveness program (Hendrix and Halverson, 1979a, p. 5).

Hendrix and Halverson (1979a) report that there have been three versions of the OAP which have evolved from efforts to develop an optimal survey package. The goal of this effort was a questionnaire of minimal length that would reliably measure organizational factors. The third version was the first used by LMDC for data collection and contained five sections to measure certain hypothesized factors.

Three Component Organizational Effectiveness Model

To accurately evaluate the state of an organization, it is essential to have a valid conceptual tool. A model of

organizational functioning is a simplified representation of complex structures, behaviors, relationships, and interactions that are thought to occur in actuality. Although a model is only an approximation of the real world, the greater its fidelity to reality, the more it serves as a valid basis for understanding and diagnosing actual organizational functioning. A model that accurately reflects the properties of an organization and is testable by quantifiable and scientific means should, therefore, be used as a basis for collection of data and as a framework for diagnosis of the collected data.

The OAP was designed to measure the basic components of the Three Component Organizational Effectiveness Model, hereafter in this report referred to as the Three Component Model. The Three Component Model was developed by Hendrix (1976) through extensive literature research on leadership in his work at the Air Force Human Resource Laboratory (AFHRL) at Brooks AFB, Texas.[1] The model reflects the contingency which emphasizes the multivariate nature of organizations and attempts to explain performance under varying conditions. The Three Component Model considers organizational effectiveness to be a function of the criteria selected, the managerial style employed, and the situational environment (Figure 1-1).

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[1]In Hendrix (1976), the model was initially entitled the Three Component Leadership Effectiveness Model and was later expanded to focus on the entire organization.

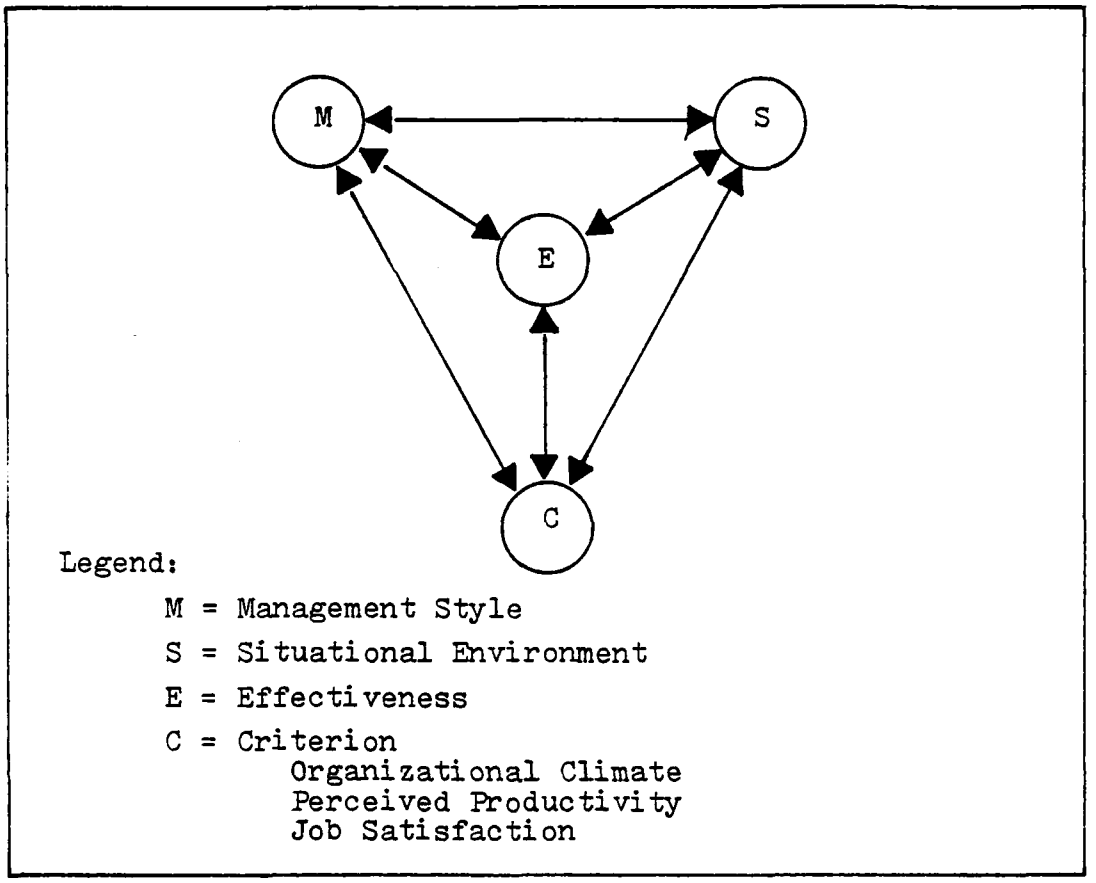


Figure 1-1. Three Component Organizational Effectiveness Model (adapted from Hendrix and Halverson, 1979a).

OAP Validation

As part of the OAP validation, LMDC collected data from 4,786 individuals at five Air Force bases using the third version of the OAP. Hendrix and Halverson (1979a) performed the initial construct validation of the survey package using these data. Extensive analyses resulted in recommendation by Hendrix and Halverson of a modified version three as an operational form of the OAP. In another study

Hendrix (1979) attempted to analyze the affects of variables from the job inventory and supervisory inventory sections of the OAP on the three performance criteria measured by the survey.

Three Component Model Validation

Neither of the above studies attempted to measure the more complex interactions of the model components, nor have there been any other reported attempts to test the conceptual validity of the Three Component Model.

As of mid-June 1980, LMDC had collected over 50,000 cases using the unmodified version three of the OAP (Wilkerson, 1980). The accumulation of these data represent a considerable investment of time and resources. It would seem, therefore, that validation of the model upon which the OAP is built is an area where research is needed.

Purpose

The purpose of this research was to determine if the OAP currently used by LMDC in their Management Consultation service provides valid data that can adequately measure factors which significantly affect the effective performance of military organizations in accomplishing their objectives. The approach to this study was to investigate the conceptual validity of the Three Component Model which provided the framework for the design of the OAP. While the Model conceptualizes interactions between three components, the scope

of this study was limited to exploring the interaction between only two components. The research focused on investigating evidence indicating the presence of interaction between management style and situational environment and the affect of such interaction on the criteria of effectiveness. The question that the research attempted to answer was:

> Is one management style more effective than another in a specific situational environment?

The answer to this question should indicate the utility of the OAP in identifying management styles which may be most successful in improving the performance and effectiveness of Air Force organizations.

CHAPTER II

BASIS FOR STUDY

INTRODUCTION

Military organizations can be viewed as open-systems operating in a rapidly changing environment. Within these systems, each Air Force manager has the responsibility to insure that his or her organization's level of adaptation to its environment is adequate. One approach of planned change which aids organizations in being more adaptive is the survey-guided feedback approach. From this approach a valid model of organizational functioning is considered essential in guiding the collection of relevant data, accurate diagnosis of organizational state, and planning effective interventions for improvement. The OAP survey was designed to measure the basic components of the Three Component Model. The model has not yet been tested to determine if it provides a valid framework for evaluating the state of an organization for an OD effort. In view of the current use of the OAP by LMDC, the need for research to establish validity for the model is thought to be appropriate and necessary.

AIR FORCE ORGANIZATIONS IN A CHANGING ENVIRONMENT

Concern for Effectiveness

Performance and effectiveness is a primary concern of Air Force managers at all levels. It has been said that accountability for performance is the essence of a manager's job and that improving the efficiency and effectiveness of others job performance is the reason managerial positions exist (Albanese, 1978). It is against the concept of effectiveness that managerial and organizational success are ultimately judged. A test of good management is its ability to organize and utilize available resources (human and non-human) to achieve and maintain an effective level of operation.

Adapting to Change

The concern of continuing and improving effectiveness and performance in military organizations implies that one must consider all the factors which affect the processes leading to goal attainment. The objective is to control the organization's sensitivity and adaptation to changing conditions and to modify the internal maintenance and performance process as a result of adaptation. The ability of an organization to successfully adapt to a changing environment is a primary characteristic of effective organizations (Duncan, 1972; Price, 1968). Lawrence and Lorsch (1967) propose that a primary task of an organization is developing strategies

which enable it to identify and cope effectively with significant areas of uncertainty in the environment.

A major managerial concern in today's Air Force is the need to design change-responsive modes of flexibility and adaptation into its organizations to maintain responsiveness to external and internal diversity and change. This must be accomplished while achieving the unity of purpose and cohesiveness necessary to act effectively.

Bureaucratic Organizations vs. Change

Military organizations which are generally bureaucratic in structure traditionally have used predetermined strategies to adjust to the demands for change by reliance on a system of formal controls, specialized roles and tasks, and standardized decision rules. But studies have shown that a bureaucratic organization operating from a closed-system perspective is not ideally suited to dynamic and uncertain environments (Burns and Stalker, 1961; Hall, 1963). Behavioral scientists have argued that the accountability of bureaucratic organizations are being challenged because their inherent internal rigidity and lack of emphasis on the importance of psycho-social considerations. This has resulted in their inability to respond to demands from their members, the environment, and society (Bennis, 1966; Mink, Shultz, and Mink, 1979).

Bureaucratic organizations are more suited to function in a relatively stable and predictable environment

(Lorsch and Lawrence, 1970). Under these conditions, managers can be more certain about future environmental states and can structure their operations in a cost efficient manner. But change has out-paced the ability of the bureaucratic organization to cope with and manage such change. The world is continually changing - politically, socially, economically, and technologically - and these changes seem to have accelerated in recent years (Bennis, 1966; Margulies and Raia, 1971). Today's organizations exist in a turbulent environment characterized by what has been called discontinuous change (Emery and Trist, 1965). Alvin Toffler has written that humanity is now a part of an environment so unfamiliar and complex that it is threatening individuals and organizations with "future shock" (1971). Future shock occurs when the types of change and the speed of introduction overpower the individual's and organization's ability to adapt.

Change vs. Stability

The failure to develop change-responsive modes into the organizational structure will result in a management-by-crisis approach (Basil and Cook, 1974). But crisis-change adaptation results in dysfunctional and traumatic adjustments in organizational process, structure, and climate. Managerial strategy for organizational goals must not only respond to demands from the environment but also be consistent with the internal capabilities and climate of the

organization. A realistic view of organizational change recognizes that both stability and adaptation are essential in perpetrating organizational effectiveness. Kast and Rosenzweig summarize this view as follows:

> Management is charged with the responsibility for maintaining a dynamic equilibrium by diagnosing situations and designing adjustments that are most appropriate for coping with current conditions. A dynamic equilibrium for an organization would include the following dimensions:
>
> 1. Enough stability to facilitate achievement of current goals.
>
> 2. Enough continuity to insure orderly change in either ends or means.
>
> 3. Enough adaptability to react appropriately to external opportunities and demands as well as changing internal conditions.
>
> 4. Enough innovativeness to allow the organization to be proactive (initiate changes) when conditions warrant (1978, p. 565).

Air Force managers charged with the responsibility of maintaining and improving the performance of their organizations must adopt a change philosophy and strategy for improving their organization's level of adaptation to its environment while considering the behavior patterns of employees.

APPROACH TO CHANGE

Process Approach

Two major approaches to planned change have been described in literature; the process approach and the

structural approach (Huse, 1979; Mink and others, 1979). The process approach stems from behavioral science and is concerned with personal behavior, interpersonal interactions, and group dynamics. Every individual in an organization has a set of values or beliefs that influence their behavior interaction with other workers. Problems may result from the presence or absence of specific behaviors that interfere with the effective functioning of the organization. The process approach would try to determine the reason for the dysfunctional behavior and focus change efforts on the underlying reason.

Structural Approach

The structural approach focuses on the technical-structural dimension of the organization and has been referred to as Management Science (Mink and others, 1979). Management Science emphasizes training and utilization of improved management control procedures. New techniques of information and control systems such as management information systems (MIS), forecasting techniques, quantitative decision models, and systems analysis are intended to improve the manager's abilities in planning and decision making, while developing a more efficient and productive organizational structure and processes. Management Science has evolved rapidly in recent years and finding increased application and success in many businesses and organizations today.

Management Science does not concern itself with employee satisfaction or organizational climate, but rather with the efficiency of the system. However, as was pointed out earlier in this chapter, organizations consist of a social dimension as well as a technical dimension that may also be considered. Planned change efforts may be directed at tasks, technology, or structure in the organization, but ultimately it is people who are affected. "All organizational change efforts, regardless of initial focus, must take account of the fact that people are being called upon to do things differently (Margulies and Wallace, 1973, p. 2)." Thus, reference to changing organizations must also be directed to changing the behavior of people. "Any change effort which does not take into account the necessity for individual behavior change is likely to prove unnecessarily difficult or, in some cases, to fail completely (Margulies and Wallace, 1973, p. 2)." Thus, both structure and process need to be considered in managing change since each affects the other.

ORGANIZATION DEVELOPMENT AS AN APPROACH TO CHANGE

Overview

Organization-Development (OD) is a relatively recent discipline of a manager-supported systems approach to planned organization change that combines applied behavioral science with structural interventions in on-going organizations.

> Organization development is a response to change, a complex educational strategy intended to change the beliefs, attitudes, values, and structure of organizations so that they better adapt to new technologies, markets, and challenges, and the dizzing rate of change itself (Bennis, 1969).

The broad objective of OD is to make the organization more effective and better able to achieve both the goals of the organization and of the individuals in the organization.

Application in Military Organizations

Army. The application of OD is rapidly expanding and is currently used in a wide range of organizations, institutions, occupations, and many locations around the world (French and Bell, 1978). OD practices are now used extensively in the United States military services with over 1,000 people involved full time in various OD programs (Umstot, 1980). The United States Army has been involved in an OD program they call Organization Effectiveness (OE) since 1972. OE is a decentralized approach using specially trained consultants assigned to major Army units and installations where they are an integral part of the organization. OE interventions are tailored to the needs of the organizational units based on thorough diagnosis of unit effectiveness. With over 350 trained full time consultants almost all major Army installations now have at least two OE consultants. According to the Chief of Staff of the Army, General Bernard Rogers, the goal is for OE to be an institutionalized management approach by 1987 (Umstot, 1980).

Navy. The United States Navy's program which is called Human Resource Management (HRM) is more centralized than the Army's. The program which is mandatory for units and completely standardized is directed from five centers with detachments throughout the world. HRM is based on a survey-guided development approach that relies on data from surveys for diagnosis and action planning of interventions. The Navy currently has some 700 people involved full time in the program and nearly all operational units have received HRM at least once.

Air Force. The United States Air Force also has a comprehensive OD program directed through LMDC that provides instruction and consultation services in the field of leadership, management, and job enrichment involving some 230 persons, as reported in Chapter I. The continued survival of OD programs in the competitive military budget arena is strong evidence of the interest and commitment that military leaders have to improving the performance and efficiency of the military organizations.

DIAGNOSIS OF ORGANIZATIONAL STATE

Origins of OD

OD has emerged from two distant but interrelated origins. One approach began with the early techniques of individual-group laboratory training such as T-groups and sensitivity training that grew from the works of Lewin

and others in the Research Center for Group Dynamics in 1946. The second major branch of OD is survey research and feedback (French and Bell, 1978) or survey-guided development (Bowers, 1976) which evolved from the techniques developed by Rensis Likert and others at the Institute for Social Research at the University of Michigan.

Change Based on Accurate Information

From the introduction of the laboratory training and survey guide development approaches, OD has evolved into a comprehensive strategy involving the application of any one or a combination of numerous techniques, each of which has been developed to focus on a particular problem area of organizational functioning. Many of these techniques have been highly effective when correctly applied to the particular problems for which they are best suited. Some techniques, however, while effective in some situations are totally ineffective in others (Huse, 1979; Warren, 1977). Constructive change therefore requires accurate and useful information about how an organization actually functions, how it should ideally function, and how to make it function more like it should. This implies that the manager must have valid information about the current state of the organization. The current state is then measured against a goal which is the potential desirable state that has been derived from some framework or model of how an organization should ideally

function. The motivation for change occurs when the manager perceives that there is a potential for improvement. Diagnosis involves the evaluation of strengths and weaknesses in system functioning and the identification of the causes of these conditions. The measures obtained provide diagnostic material and the diagnosis guides the selection of change strategies called interventions that focus on the causes of the problems. If diagnosis is incorrect, a great deal of time and effort may be spent in attempting to solve problems by changing the wrong conditions or by using the wrong interventions to change them. It is therefore important that changes be based upon an accurate diagnosis of problems and their causes. As Warren has stated, "to proceed on an improvement program without an objective prior diagnosis of the potential for change is to gamble a large amount of organization resources (1977)."

Action Research Model

The importance of diagnosis to OD activities is seen in the arguments of French and Bell (1978) and Huse (1979) that the underlying foundation of OD is the action research model of change. Action research is a systematic data-based method of problem solving that provides the approach and process for obtaining and using information about an organization that is the basis for planning action, taking action, and evaluating action. French and Bell summarize this view in the following:

> OD is, at heart, an action program based on valid information about the status quo, current problems and opportunities, and effects of actions as they relate to goal achievement. An OD program thus starts with diagnosis and continually employs data collecting and data analyzing throughout (1978, p. 52).

The preceeding discussion emphasized the importance of diagnosis to any effort of planned change can be condensed to two essential factors - valid information and a realistic model of organizational functioning.

DATA COLLECTION

Questionnaires

Diagnostic data may be obtained through several different techniques such as observations, interviews, surveys, or a combination of these. The selection of the best method must be made in consideration of time, cost, level of participation, and the amount of data required (Margulies and Wallace, 1973). Fixed-response questionnaires have become one of the most popular techniques for data gathering due to several distinct advantages for organizational work (Nadler, 1977). The cost of administering a questionnaire to a large number of individuals is relatively low and the questionnaire can be used to obtain a large amount of data on a whole range of topics. The responses can be easily summarized, aggregated, and subjected to statistical analysis with minimal preparation. Results from questionnaires administered at different times during the change effort can be easily compared to evaluate the effectiveness of interventions.

Questionnaires also have a number of shortcomings as data collecting methods due to their inflexibility and impersonal process. Additionally, questionnaires have the problems of response bias. Questionnaires collect individuals perceptions of behavior rather than data about actual behavior and perceptions may be biased. Bias includes tendencies to answer questions that are next to each other in a similar manner and a tendency to answer questions later in the questionnaire with less enthusiasm and honesty than earlier questions (Nadler, 1977).

Although the shortcomings must be taken into consideration in diagnosis, certain of these problems can be overcome in the design and administration of the questionnaire and the advantages stated before are generally thought to overshadow the disadvantages. The Air Force LMDC consultation program is built around data gathered through the use of the OAP survey administered throughout the client organization and backed by individual interviews of key personnel. A computer support systems allows LMDC to store, retrieve, and analyze the data from these surveys about numerous facets of leadership and management in the Air Force (LMDC, 1979).

Valid Information

A key issue when developing diagnostic data collection programs is the decision about what data to collect. There is an infinite variety of information that can be

collected about an organization, but it is wasteful economically and academically to attempt to collect information that is trivial and irrelevant to the development effort. The choice of which data to collect is critical to an effective process of planned change since the diagnosis is only as good as the data on which it is based and the change strategy used. An accurate diagnosis requires information about the systematic properties of organizational functioning that identify cause-effect relationships throughout the total system not just those defined by the simple sum of individual and group behaviors (Bowers and Franklin, 1977).

MODEL OF ORGANIZATION

Basis of Data Collection

A valid model of organizational functioning that includes these systematic properties should be used as a basis to decide what information is needed and for designing the questionnaire to obtain that information. It also provides the framework for diagnosis of the collected data. Nadler (1977) has said that diagnosis is a process of asking the right questions and a good model provides a list of diagnostic questions which can serve as a road map through the data.

Model vs. Reality

A model represents reality but is less complex than the phenomenon which it represents. In the case of

organizational functioning, a model is used to represent and isolate the interrelationships of what are thought to be the key components of the organizations while holding constant or eliminating the effects of elements thought not to be as important. Because of their simplicity and the feature which allows for isolation of variables, they provide an easy and economical way to examine alternative relationships affecting performance. Although a model is only an approximation of the real world, the greater its fidelity to reality the more it serves as a valid basis for understanding and diagnosing actual organizational functioning. An OD program based on an invalid model about process, structure, behavior, and their relationships can lead to an ineffective survey design, inaccurate diagnosis of data, and ineffective results or possible unexpected dysfunctional consequences. Having a valid, effective, and tested model is therefore essential to the OD effort.

Requirements of Model

The requirements of a model for developing an effective data based improvement program is described by Bowers and Franklin. A model should be:

1. Applicable to the current setting.

2. Reasonably comprehensive or broad in scope - its content should approximate the content of the real-world phenomena that it purports to represent.

3. Fairly precise or unequivocal in its predictions, that is, containing fairly clear cause-effect implications (1977).

CONTINGENCY MODEL

A model which is thought to approach these requirements and is currently receiving a great deal of attention in literature and research is the contingency model. The systems approach provides the foundations for the contingency model that is the focus of this study. A consequence of adopting the open-systems approach is acceptance of the proposition that everything that happens or changes affects everything else. The contingency model emphasizes the multivariate nature of organizations and attempts to explain how organizations perform under varying conditions. At issue is the task of adjusting the organization managerial actions, processes, and structure to cope effectively with different environmental circumstances. The utility of the contingency model is summarized by Kast and Rosenzweig as follows:

> . . . it can help managers select the appropriate organizational design within certain environmental and technological contents; it can provide guidelines for realistic planning and control process in differing situations; it can help in determining appropriate leadership styles; and it can be instrumental in determining the most relevant means for organizational change and improvement (1978, p. 118).

Three Component Model

The Three Component Model that is the focus of this study is a contingency model that considers organizational effectiveness to be a function of the criteria selected, the managerial style employed, and the situational environment.

This model was used as a basis for the design of the OAP. LMDC uses the OAP as its primary means of collecting diagnostic data in its management consultation service. As was reported in Chapter I, LMDC has already made extensive use of the OAP in the collection of over 50,000 cases as of mid-June 1980 (Wilkerson, 1979).

Hendrix and Halverson (1979a) have performed research to establish construct validation of the OAP. Their research has found that the OAP measures 17 factors with sufficient internal consistency (Cronbach coefficient alpha greater than .70) that were within the structure hypothesized for the Three Component Model. There has not been, as yet, any research to validate the relationships of the measured factors as conceptualized by the Three Component Model. In view of the current use of the OAP by LMDC and the commitment of time and resources this represents, the need for such research to establish conceptual validity for the model is appropriate and necessary.

CHAPTER III

CONCEPTUAL BACKGROUND

INTRODUCTION

The OAP was designed to measure components of the Three Component Model (Hendrix and Halverson, 1979a, 1979b). This model conceptually reflects a contingency approach in which the effectiveness of an organization is contingent upon the leadership style, the situational environment, and the criterion selected for measuring effectiveness.

This chapter presents a brief review of the conceptual background of the contingency approach to organization and management theory. It begins with a review of the systems approach as a framework for the development of a contingency model followed by a summary of the literature upon which Hendrix developed his contingency model.

FRAMEWORK FOR ANALYSIS

Organization Theory

A primary concern in any attempt to evaluate organizational effectiveness is consideration of the interrelationships among the variables that jointly influence the desired goals or objectives. Effectiveness must be concerned with variables of at least three levels in the organization

to understand these relationships: the individual, the organization as a whole, and the environment. It is, therefore, necessary to begin with a theory that offers a realistic explanation of observed phenomena of individual behavior, group behavior, the organizational process, and the environmental influences. Such a theory permits the observed phenomena to be organized into some logical model which serves to explain behavior and events. An acceptable theory is one that results in reasonably accurate predictions of future behavior under certain conditions.

General Systems Theory

Since the 1950's, the General Systems Theory (GST) has provided a popular paradigm for the study of social organizations. It has provided the basic frame of reference for the systems approach and the more recently developed situation-contingency approach. Ludwig von Bertalantffy, a biologist, is credited with formalizing the GST in 1950 when he presented the idea that all living organisms are open systems and as such interact with their environment (Schoderbek, Schoderbek, and Kefalas, 1980). He further advocated that living organisms are goal directed and that to understand the organism's behavior one must view the system as a whole with its various parts functioning interdependently to achieve common goals.

Organizations As Systems

Social scientists quickly embraced the systems concept and applied it to the study of organizations. The systems theory provided a model which was free from the limitations of the rigid, inflexible, and simplistic approaches which had existed under closed-system thinking. In general, the systems approach provides a way to view the total organization in its interaction with its environment and for explaining the relationships among internal components that jointly influence ultimate organizational success (Kast and Rosenzweig, 1978). It focuses attention on analysis of interrelationships at three levels of the organization; the suprasystem, the subsystems, and the organization in its entirety.

Open-Systems. From the systems approach the organization is viewed as an open-system which exists in and is in continuous interaction with its larger supra-system. As an open-system, the organization imports from its environment financial resources, physical resources, information and human resources. It functions to transform these raw inputs into finished outputs of products and services which it exports back into the environment. It is through the continuous interchange of inputs and outputs with other systems which it serves or upon which it depends that an organization affects or is affected by the larger suprasystem.

Interaction of Subsystems. In addition to being a part of a larger suprasystem, the concept of the systems

approach commonly defines the organization as an assemblage of subsystems performing as a unitary whole for a common purpose (Johnson, Kast and Rosenzweig, 1967). These subsystems function in the transformation process which represents the operational efforts of the organization. The organization structures human activities around various technologies of machinery and production to change raw inputs into outputs with value added. The technology affects the process but it is the social aspect which determines the effective utilization of technology (Kast and Rosenzweig, 1978). Interactions among and between each of the subsystems contribute to the total performance of the organization. Proper integration produces a synergistic effect in which the total performance is greater than the collective performance of all the parts acting separately.

Interdependence of Subsystems. The subsystems also depend upon one another to provide mutual satisfaction for needs that cannot be attained separately. The significance of this concept of interdependence is that all parts of the organization are affected by a change in any one part or set of parts. The interaction and interdependence of the subsystems result in the concept of the organization as a functioning whole. This concept differentiates the systems approach from analytical approaches in which the focus is on the investigation of the functioning of the individual parts in isolation.

Organization Components

Kast and Rosenzweig identify five major components that have potential significant influence on the organization as an entity. These include: (1) goals and values, (2) psychosocial, (3) structural, (4) technological, and (5) managerial. Goals represent the desired conditions or objectives that an organization attempts to achieve (Etzioni, 1964). They provide the basis for the direction and purpose of the organization. Organizations usually have multiple goals which are determined by different values, interests, and forces internal and external to the organization.

Goal Component. Social goals are usually reflected in the official goals or mission of the organization and are used to justify or legitimize its existence in society. An organization is contrived and exists to perform some desired function for its environment. The environment must find utility or satisfaction in the output of the organization to justify the input of additional resources that are necessary to its continued functioning (Luchsinger and Dock, 1977).

Operative goals "designate the ends sought through the actual operating policies of the organization: They tell us what the organization is trying to do. . . (Perrow, 1961, p. 855)." Operative goals provide the basis for operating plans and policies and for purposeful behavior. They also provide the standards against which effectiveness is judged and are therefore the key to managerial accountability for performance (Albanese, 1978).

Individuals also have goals or notions about what they want from their jobs. An individual's association with an organization can be viewed in terms of an exchange relationship in which the individual contributes energy toward organizational goal attainment in exchange for certain outcomes from the organization that facilitate personal goal attainment (Steers, 1977). Goals can therefore represent a significant influence on the behavior of individuals in the organizational process.

Structural Component. Structure refers to the patterns of relationships that are established to achieve objectives in an efficient and effective manner. Structure is established through the relatively fixed design of the organization's subsystems. This structure represents the hierarchy, authority, task responsibilities, and communication channels that is specified by formalized documents. Informal relationships also exist in every organization which may also affect performance.

Technological Component. Technology refers to the mechanisms used by an organization to transform raw inputs into finished outputs. The technical component is determined by the task requirements of the organization and is shaped by the knowledge and skills needed and by the equipment and machinery involved in the process (Kast and Rosenweig, 1978).

Psychosocial Component. The psychosocial component as described by Kast and Rosenzweig (1978) is the

organizational climate which represents the cultural and social milieu where individual behavior is determined. Culture is the pattern of shared beliefs, values, attitudes, and norms which guide and influence behavior. It affects the way in which the organization is seen by its members and thus affects their behavior at work. Discussions about climate generally focus on motivation, group dynamics, expectancies, and aspirations.

Steers (1977) suggests that climate may be thought of as the personality of the organization as seen by its members. This definition focuses on the perceptual realm of climate. In this regard, climate of the organization is what the members perceive it to be. Thus, the variables that constitute the climate are characteristics that distinguish the organization as seen by members of the organization.

Managerial Component. The managerial component is the planning, organizing, and controlling force that spans the entire organization and links the components into a coordinated, goal-directed effort. In the final analysis it is the manager who determines the policies and procedures that influence the ability of an organization to efficiently and effectively achieve its goals over time (Steers, 1977).

Conceptual Guide

The systems approach is a conceptual guide that is characterized by awareness of subsystems, suprasystems, and

the relationships between them that affect the whole system. Systems concepts provide the broad framework for understanding all organizations. However, the systems approach involves a high degree of generalization that does not account for the fact that each organization has its own particular environment, tasks, goals, and climate. Thus each organization represents a unique situation that must be analyzed in more specific ways.

CONTINGENCY APPROACH

Overview

Since the 1960's, a new conceptual perspective called the Contingency Approach has emerged which embraces and overlaps the systems approach but which is more concrete in emphasizing specific characteristics of social organizations including the patterns of relationships among the various subsystems. A consequence of accepting the systems view is the realization that it is impossible to prescribe principles that are appropriate to all organizations. The number of variables involved makes it impossible for a simplistic model to depict reality. The contingency view recognizes that every organization represents a unique situation of the various interactions, interdependencies, and influences. It focuses on identifying and analyzing factors that cause some organizations to function more effectively than others. It also presents the view that there is no one best way to

design and manage an organization in all situations that will constantly result in effective performance. Rather, appropriate design and management is contingent upon the particular environment, nature of work, and climate of the organization. Kast and Rosenzweig summarized the contingency concept as follows:

> The contingency view seeks to understand the interrelationships within and among subsystems as well as between the organization and its environment and to define patterns of relationships or configurations of variables. It emphasizes the multivariate nature of organizations and attempts to understand how organizations operate under varying conditions and in specific circumstances. Contingency views are ultimately directed toward suggesting organizational designs and managerial actions most appropriate for specific situations (1978, p. 115).

While the systems approach indicates the organization's sensitivity and responsiveness to demands and opportunities from its internal and external environment, the contingency approach is concerned with these managerial actions, processes, and designs that permit the organization to cope effectively with the changing environmental circumstances.

Model Building

Considerable research has been conducted in the past two decades in which a contingency approach has been applied in attempts to successfully model the pattern of relationships among organizational variables under varying circumstances. Contingency studies typically involve model building where hypothesis are generated and tested concerning

particular relationships between major variables that can affect organizational success. These multivariate relationships provide a comprehensive model of sets of variables involved in effective performance and some concept of how such variables fit together (Steers, 1977). Ultimately an understanding of these relationships will facilitate meaningful suggestions for appropriate organizational designs and managerial action.

Contingency applications have involved a variety of relationships that have investigated many possible combinations of organization variables. A number of studies have been concerned with a contingent relationship of organizational design and effectiveness (Lawrence and Lorsch, 1967; Chandler, 1962; Blau and Scott, 1962). Others have focused on technological influence on effectiveness (Woodward, 1958; Mahoney and Frost, 1974; Hickson, Pugh and Pheysey, 1969).

THREE COMPONENT MODEL

One of the major areas where the contingency approach has been used a great deal is in the investigation of relationships between leadership style, environmental variables, and effectiveness (Burns and Stalker, 1961; Fidler, 1967; House, 1971; Blake and Mouton, 1964; Reddin, 1967; Hersey and Blanchard, 1972; Tannenbaum and Schmidt, 1973; Stodgill, 1959; Yukl, 1971). The Three Component Model with which this study is concerned was originally developed as a

paradigm of leadership, environmental, and effectiveness interactions (Hendrix, 1976). It was later expanded to a more comprehensive view of organization effectiveness and the leadership component was renamed the management component (Hendrix and Halverson, 1979a). The model was otherwise unchanged and its focus remains basically on the multivariate relationship between managerial style, situation environment, and organizational effectiveness (See Figure 1). The basis for choosing these three components was that "they provide a useful descriptive framework for depicting leadership as a decision making process (Hendrix, 1976)."

Criteria of Effectiveness Component

Added Component. One of the features of Hendrix's model which distinguish it from earlier investigations is the inclusion of a multiple criteria of effectiveness component. The implication is that the leader is required to vary his style in a given situation as different criteria of effectiveness are established. The basis for the inclusion of this multivariate feature was the earlier research of Carter and Nixon (1949) and more recently Wofford (1971). Both studies concluded that for a fixed managerial style, effectiveness depends upon the criterion used. In other literature on the subject there are references to many different determinents of organizational effectiveness. Campbell (1976) identified 30 criteria of effectiveness

indicated by the empirical literature he had reviewed. But as Scott has pointed out:

> There is a disagreement about what properties or dimensions are encompassed by the concept of effectiveness. There is disagreement about who does or should set the criteria to be employed in assessing effectiveness. There is disagreement about what indicators are to be used in measuring effectiveness. And there is a disagreement about what features of organizations should be examined in accounting for observed differences in effectiveness (1977, p. 63).

Dubin (1976) cites one reason for this confusion as a difference in perspective. He argues that two fundamentally differing meanings associated with organizational effectiveness depend on how one views the organization - from the inside or from the outside. The perspective that views the organization from within is a managerial one which is interested in the efficient and effective utilization of resources. The outside view sees the organization in relation to the larger society and the benefit gained from the investment of resources. Dubin calls these two viewpoints the fundamental dilemma - the efficient resource utilization perspective and the social utility perspective. In light of this dilemma, it would seem that a choice of effectiveness criteria would be necessary depending on the prevailing point of view. Under some circumstances, both views of effectiveness may have to be used so that appropriate amounts of both operating efficiency and social utility can be attained at the same time.

As a further guide to the understanding of effectiveness within either of the above perspectives, two approaches are predominately used in research - the goal approach and the systems approach (Schoderbek and others, 1980).

Goal Approach to Effectiveness. From the goal approach, which seems to have more acceptance in literature, effectiveness is measured by the degree to which the organization achieves its goals or objects. As was pointed out earlier in this chapter, organizations are likely to have multiple goals reflecting different interests and values inside and outside the organization. Thus, a criterion of effectiveness or a set of criteria must be selected that measure the attainment of the dominant interests of the organization.

Systems Resource Approach to Effectiveness. The systems resource approach to organizational effectiveness is often linked to Yuchtman and Seashore (1967). They define effectiveness in terms of the ability of an organization to secure an advantageous bargaining position in its environment and to capitalize on that position to acquire scarce and valued resources. Schoderbek and others restate the systems resources approach as

> how well the system integrates all of its component parts and how well it is able to cope with the changing environment from which it obtains its resources and to which it contributes its products or services (1980, p. 242).

Adaptation and survival become measures of effectiveness according to this approach. But Schoderbek has suggested that this approach is not really different from the goals approach. This criticism is supported by Price (1972) who says that it is difficult to avoid using goals either explicitly or implicitly when assessing effectiveness. Also, Hall has said "the acquisition of resources does not just happen. It is based on what the organization is trying to achieve - its goal - but it is accomplished through the operative goals (1972, p. 100)."

Three Criteria of Effectiveness. In developing the OAP as a means to measure the basic components of the Three Component Model, Hendrix and Halverson (1979a) selected three criteria which reflect the managerial perspective of effectiveness. The criteria selected include job satisfaction, organizational climate, and perceived productivity. These items were found to be common to much of the literature on past studies of effectiveness and provided a measure of organizational success toward goals of both task accomplishment and consideration of employees.

Management Style Component

Overview. One of the most extensively researched subjects in contingency studies has been in the area of leadership which has focused attention on specific situational factors that influence the appropriateness of one

managerial strategy over another. The attention devoted to this subject is understandable considering the manager's key role in creating and maintaining an environment in which people can accomplish goals effectively and efficiently. If effectiveness is viewed in terms of the attainment of operative goals, then a primary responsibility of managers is to insure that maximum effort is directed toward these goals.

Traditional Approach to Leadership. Traditional management theory maintained that certain principles of leadership were appropriate and applicable to all organizations and all management tasks. The universalist approaches of the "great man" and "personality trait" searched for a key to leadership that was independent of situational context and follower's behavior and personality. But great men owe some of their greatness to circumstances and to followers and no one has ever found a set of leadership traits that are common to all successful leaders (Stogdill, 1948).

Behavioral Approach to Leadership. In the 1950's, behavioral scientists began to focus attention on actual leader behaviors. Since then many investigations have utilized various leader behavior dimensions in attempt to determine which behaviors distinguish effective leadership. One of the earliest and best known behavioral approach studies was conducted by Ohio State researchers. This group sought to identify independent dimensions of leadership

behavior and determine which was most effective. Through the use of questionnaires, two orthogonal factors were isolated: "initiating structure" and "consideration". Initiating structure refers to behavior that is directed toward getting the job done. Consideration, on the other hand, refers to behavior that indicates friendship, mutual trust, respect, and concern for the welfare of the employee. The findings from the research indicate that peak effectiveness, which is achieved by a mix of the two factors, depends on structural factors.

At about the same time, studies at Michigan Survey Research Center paralleled those at Ohio State. The primary objective was to identify styles of leader behavior that resulted in increased work-group performance and satisfaction. Two leadership styles were identified that were described nearly identically to those of the Ohio State study. These were named "job-centered" and "employee-centered" leadership styles. The main conclusion reached by this study was that more than one criteria of effectiveness was necessary to evaluate any leadership style (Szilagyi and Wallace, 1980).

Two Dimensions of Leadership. "Initiating structure", "job-centered", "consideration", and "employee-centered" may be viewed as specific labels that identify two general behavior dimensions - task and people. The study of leadership since the Ohio State and Michigan studies has tended to revolve around the idea that effective leadership

involves some degree of task-oriented and people-oriented behavior (Albanese, 1978). These dimensions are usually present in leadership studies even when more than two dimensions are present.

Four Dimensions of Leadership. Bowers and Seashore suggest four dimensions of leadership effectiveness:

> Support. Behavior that enhances someone else's feeling of personal worth and importance.
>
> Interaction Facilitation. Behavior that encourages members of the group to develop close, mutually satisfying relationships.
>
> Goal Emphasis. Behavior that stimulates an enthusiasm for meeting the group's goal or achieving excellent performance.
>
> Work Facilitation. Behavior that helps achieve goal attainment by such activities as scheduling, coordinating, planning, and by providing resources such as tools, materials, and technical knowledge (1966, p. 247).

"Support" and "interaction facilitation" reflect people-oriented leader behavior. "Goal emphasis" and "work facilitation" relate to task concerns and to the path-goal theory of leadership.

House's Path-goal Theory. House (1971) advanced the path-goal theory from the instrumentality concept of expectancy theory of motivation. House proposed four factors in an attempt to define the influence potential the leader has over the subordinate. The assumption is that subordinate performance satisfaction will improve if the leader can influence the valence and expectancy perceptions of the

subordinate. The leader's task-oriented behaviors, named by House "instrumental behavior" and "achievement-oriented behavior", provide a mechanism for path-goal clarification in terms of the effort-to-performance and performance-to-reward expectancies. When expectancies are clear, the people-oriented behaviors, which House called "participative behavior" and "supportive behavior", make the paths to goal attainment easier to travel, thereby improving the motivation and satisfaction of the subordinated.

Reddin's 3-D Model. One of the most comprehensive normative leadership models with respect to predicting relationships between leader behavior and situations is Reddin's 3-D Model of leadership effectiveness (1967). Reddin began with two dimensions of managerial style which he based on the Ohio State and Michigan studies. He then used the same approach as Blake and Mouton (1964) to develop four basic leadership styles. The two dimensions of task orientation and relationship orientation were used to form a matrix or grid. The four styles of leadership behavior were identified according to their orientation to the two axis. Reddin extended the grid concept by adding a dimension of effectiveness and providing an evaluative framework for assessing the appropriate use of task and relations oriented behaviors in specific situations. In Reddin's model, the leadership style varies along a continuum of effectiveness. At one extreme, four leadership styles are depicted as effective -

that is, they are appropriate to a given situation. At the other extreme are four other leadership styles that are ineffective or inappropriate in a given situation. Reddin suggests that three skills are required to become an effective manager. These skills involve (1) diagnosis of the situation, (2) changing the situation to match the style of leadership, or (3) changing the leadership style to match the situation.

Wofford's Five Dimensions of Leadership. Wofford (1970) derived five dimensions of leadership behavior through an inductive process that is typical of the majority of contingency studies. His approach was to isolate managerial behaviors from survey responses by factor analysis. The dimensions obtained were then correlated with effectiveness criteria to identify significant situational influences. The five styles identified were: (1) group achievement and order, (2) personal enhancement, (3) personal interaction, (4) dynamic achievement, and (5) security and maintenance.

Hendrix's Five Dimensions of Leadership. In developing his Three Component Model, Hendrix (1976) selected five dimensions that he suggested would be relevant to effective leadership in a variety of situations. The five dimensions were modified versions of the five derived by Wofford (1970) and are defined by Hendrix as follows:

> The group processing factor or dimension refers to the predominant managerial style employed by a manager who uses the group process in decision making, organizing, motivating, and communicating. He is thorough, plans well, and is highly

organized and orderly. This factor is characteristic of the professional administrator.

The self-enhancing factor refers to the leader who uses his organizational authority as the primary means of influencing subordinates. He is outspoken and demanding and seeks personal recognition rather than recognition for his subordinates.

The dynamic interacting factor refers to the leader who is warm, friendly, and informal in his interactions with his subordinates. He spends a great deal of time interacting with his subordinates and often works with them to complete their daily assignments.

The structural achieving factor refers to the leader who sets specific goals with his personnel and measures their performance in reaching these goals. He is open and direct with others, and is characterized as efficient and energetic.

The compromising factor refers to the leader who is cautious, somewhat aloof, and who checks with both his supervisor and his personnel before making a decision. He prefers to remain neutral when problems arise, and he readily changes his decisions when there is disagreement with them. Since he separates himself from his personnel, he promotes a great deal of freedom for their actions; such as setting their own goals, establishing their work routines, and developing their work standards (1976, p. 31).

Hendrix's selection of these dimensions was based upon Wofford's (1970, 1971) studies in which he perceived that they are more appropriate for managerial behavior than the two dimensions of consideration and initiating structure. Hendrix cites his reasoning for this conclusion was that "these five dimensions were derived from studies involving the managerial functions of planning, organizing, and controlling, as well as that of leading (1976, p. 31)."

It should be noted that the people-oriented dimension is reflected in Hendrix's dimension "dynamic interaction" and the task-oriented dimension is seen in his "structural achieving".

Situational Component

The third component of the Three Component Model is the situational environment. The situational environment in the context of the managerial contingency model can include virtually anything which may influence the effectiveness of a particular managerial style. Obviously, a model which included all variables would be impossible to deal with. As with leadership styles, research attempts to identify and verify dominate situational variables deductively from theory or inductively by data reduction techniques.

Stability of External Environment. Many studies have focused on the affects of the external environment on managerial effectiveness. Burns and Stalker (1961) surveyed twenty British industrial firms in an effort to identify relationships between certain environmental characteristics and resulting managerial practices. They concluded that there were two distinct approaches to management that were a function of the relative degree of stability in the external environment. Terreberry (1968) also argues that environmental conditions are increasingly important. She

says more adaptive management approaches are required to cope with more turbulent environments.

Complexity of External Environment. Osborn and Hunt conducted a more recent study in which they viewed environmental complexity as being composed of three interrelated variables: (1) the amount of risk in organizational-environmental relationships; (2) environmental dependency, or the degree to which an organization relies upon elements in the environment for growth and survival; and (3) inter-organizational relationships or the ability of an organization to develop favorable exchange relations with its environment. The study indicated that the degree of risk present in the external environmental was unrelated to effectiveness but Osborn and Hunt concluded:

> Regardless of the level of risk or dependency, one point seems to stand out. The manner in which the organization attempts to link itself with the environment has an important influence on effectiveness (1974, p. 241).

Subordinates and Work Environment. While many studies have focused on situational factors in the external environment, others have concentrated on the situation of the internal environment. House (1971), in developing his path-goal theory, considered two internal factors situational because they influence the relationship between the leader's style and the behavior of the subordinate. The two are the characteristics of the subordinates and the

characteristics of the work environment defined by the tasks, the primary work group, and the formal authority system.

Leadership Perspectives. Hersey and Blanchard (1972) propose a Life Cycle Theory of Leadership which integrates Reddin's 3-D Model and Argyris' Maturity theory. The Life Cycle Theory associates leader behavior with the maturity of subordinates. From another perspective, Woodward (1958) and Dubin (1965) have suggested that technology is associated with the organization's managerial structure and thus the management style.

Five Internal Factors. Forehand and Gilmer (1964) suggest that the basic situational components affecting the leadership process are: (1) organizational size, (2) organizational structure, (3) system complexity, (4) leadership pattern, and (5) goal direction. Wofford (1971) using the same inductive approach with which he isolated leadership styles, identified five situational variables that closely parallel those of Forehand and Gilmer. These are: (1) centralization and work evaluation, (2) organizational complexity, (3) size and structure, (4) work group structure, and (5) organizational layering and communication.

Hendrix's Six Internal Factors. Hendrix (1976) proposed six situational variables based on the studies of Forehand and Gilmer, Wofford, and Hersey and Blanchard. Hendrix defines these as follows:

The centralization and work evaluation factor refers to the degree of centralization of the decision-making power in the organization, and to the situational aspects influencing the closeness of the supervisory control.

The organizational complexity factor refers to the degree of organizational complexity and sophistication. The level of ability and technical knowledge required are aspects of this factor.

The size and structure factor refers to the size of the organization and the degree of work task structuring.

The work group structure factor refers to the work groups structural attributes. For example, a high rating on this factor would indicate that a work group was small and its operations supported group meetings.

The organizational communication factor refers to those aspects of the organization relating to communication layers and peer communications.

The group member maturity factor refers to the capacity of group members to take responsibility, be able to set their own goals, and work without close supervision (1976, pp. 31-32).

DIAGNOSING THE ENVIRONMENT

An important function of the manager's job is diagnosing and evaluating the many factors that may affect his or her leadership success (Szilagyi and Wallace, 1980). Diagnostic skills involve the ability to identify and understand the influence of situational factors that arise internal and external to the organization. Continuous examination of the situation is critical for the manager who is responsible for the effective functioning of an organization.

CHAPTER IV

METHODOLOGY

INTRODUCTION

This chapter presents the method of analysis used in testing for interaction effects of management style and situational environment on organizational effectiveness as conceptualized in the Three Component Organizational Effectiveness Model. The procedure involved three basic steps that will be discussed; (1) obtaining factor scores for work groups, (2) deriving profiles of management styles and situation environments, and (3) hypothesis testing by analysis of variance (ANOVA). The discussion begins with a description of the data used in the analysis.

DATA

Source

The data used in this study is the same as that used by Hendrix and Halverson as part of the validation phase in developing the OAP (1979a). The data were collected by Air Force consultants from LMDC who administered the OAP at selected Air Force installations to all available personnel. A sample of 4,786 military and civilian personnel was collected at five Air Force bases representing six major

commands. The composition of the sample was determined by Hendrix and Halverson (1979a, 1979b) and is summarized in Table 4-1.

TABLE 4-1
COMPOSITION OF SURVEY RESPONDENTS

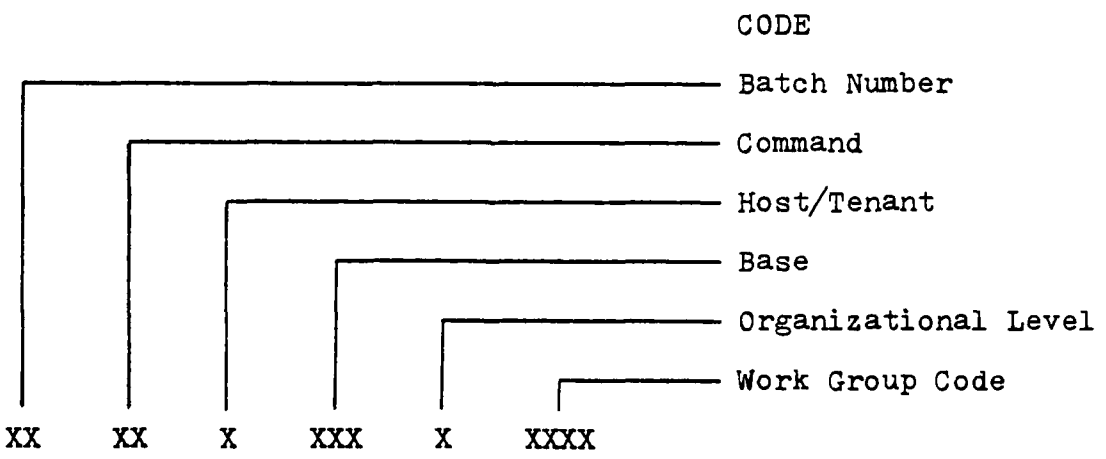
Officer	17%
Enlisted	66%
Civilian	17%
Male	86%
Female	14%
White	78%
Black	10%
Hispanic	5%
Other	7%
High school non-graduate	2%
High school graduate	76%
Bachelor's degree	15%
Master's degree	6%
Doctoral degree	1%

The data were obtained from the Technical Services Division of the Air Force Human Resources Laboratory (AFHRL/TS) at Brooks AFB, Texas. The data were received on magnetic tape and subsequently transferred to disk file omitting extraneous data computed by researchers at Brooks. Total data transferred consisted of 4,786 cases. Each case contained 165 responses, a 13 digit structure code, and a five digit Air Force skill code (AFSC).

Code. In analyzing the OAP, the concept asserted by Hendrix and Halverson was that the basic unit of analysis

was the work group. The work group was defined to be "any group of individuals performing work under a work group supervisor/manager (1979a, p. 9)." In order to identify each respondent to a specific work group reporting to the same supervisor as well as other membership information, LMDC used a structure code during data collection. The code, consisting of 13 digits as indicated in Table 4-2, is filed with each case allowing the data to be arranged in a variety of combinations according to the parameters identified. A five digit code representing the individual's AFSC was also included to allow for grouping with respect to that parameter.

TABLE 4-2
STRUCTURE CODE



(adapted from Hendrix and Halverson 1979a, p. 9)

Scope. The OAP was designed to measure the components of the Three Component Organizational Effectiveness Model. The OAP contained six sections which were: (1) background information, (2) job inventory, (3) supervisory inventory, (4) organizational climate inventory, (5) perceived productivity, and (6) job satisfaction questionnaire. The background information section contained 16 biographical information items. The job inventory section contained 58 items to measure the dimensions of the situational environment based on the job enrichment model proposed by Hackman, Oldham, Janson, and Purdy (1975). The supervisory inventory consisted of 41 items to identify the dimensions of managerial behavior. The remaining three sections contained 50 items which measure the three criteria of effectiveness.

Survey Scale. The scale used in the OAP is a closed response scale. A seven point closed response rating scale was used in all sections except the 16 item background information section where a multiple choice scale was used.

Factor Analysis

As was mentioned in the preceeding chapter, inductively determining leadership styles and environmental situations typically involves the use of statistical data reduction techniques. In this way the researcher is able to isolate underlying attributes of leadership and the environment from a larger set of measurable characteristics.

Factor analysis is a suitable technique to accomplish this purpose (Nie, Hull, Jenkins, Steinbrenner and Brent, 1975). Hendrix and Halverson (1979a) used factor analysis to test construct validity by determining if the factors hypothesized to be associated with the model were extracted. They first performed orthogonally rotated factor analysis of the overall survey excluding the background information items. Twenty-one factors were extracted that fell within the structure hypothesized for the model. The overall factor analysis served to identify factors which had items loading from different sections of the OAP. Items loading from two sections were deleted from the section considered most illogical.

A second series of factor analyses were performed - one for each section of the OAP. Hendrix and Halverson stated the reason for analysis of each section was that ". . . each section should be capable of standing alone as a separate survey which measured factors related to that area of concern (1979a, p. 15)." These analyses resulted in 22 factors being extracted. In addition, for each factor extracted, Hendrix and Halverson established the internal consistency by the Cronbach coefficient alpha (Cronbach, 1951) technique. Eliminating factors with a coefficient alpha less than .70, 17 factors were identified and recommended for retention in an operational OAP. These factors were identified by examination of the OAP questions on which they loaded most heavily and are shown in Table 4-3.

TABLE 4-3
FACTORS RECOMMENDED FOR INCLUSION
IN OPERATIONAL OAP

Situational Environment	Job Enrichment Time Management Freedom/Autonomy Advancement-Recognition Equipment-Work Space Work Repetition Task Accomplishment Meaningful-Responsible Work
Supervisory Inventory	Management-Supervision Supervisor/Assistance Feedback Autonomous Control
Organizational Climate	General Organizational Climate Organizational Communications Climate
Perceived Productivity	High-Productivity
Job Satisfaction	Job Related Satisfaction Base Facilities Job Related Training

FACTOR SCORES

The first computations involved in this study were done to obtain the work group factor scores for each of the factors identified by Hendrix and Halverson. This was accomplished in two steps. Factor scores were first obtained for each of the 4,786 cases and then the work group factor score was found by computing the mean factor score for all cases with identical structure codes. The factor scores for each case estimate the values of the extracted factors if they could have been measured directly (McNichols, 1979).

Factor scores for each case were obtained by performing a series of varimax rotated principal component analyses on the data from each section of the OAP. SPSS subprogram FACTOR was used with the keyword FACSCORE to have factor scores output on a raw-output-data file (Nie and others, 1979). In the FACTOR program, the Kaiser criterion was specified so that only factors with factor contribution (eigenvalues) of 1.0 or greater would be retained for varimax orthogonal rotation and computation of factor scores.

A modification of the OAP data for this analysis resulted in slightly different results from those obtained by Hendrix and Halverson. Data from four questions which appeared in the Job Inventory section of the OAP were changed to be included in the factor analysis with the data from the Supervisory Inventory section. These questions had loaded more heavily with the Supervisory Inventory factors in the construct validation by Hendrix and Halverson (1979a) and for that reason were not recommended for inclusion in the operational OAP. The four questions were:

(245) To what extent does your supervisor provide the assistance you need to manage your work?

(246) My supervisor asks for ideas before making decisions.

(247) To what extent does your supervisor encourage the people in your work group to work as a team?

(248) To what extent does your supervisor allow you to make decisions concerning your work?

It was found that including these data in the factor analysis of the Supervisory Inventory section resulted in extraction of a fourth factor representing another significant dimension of managerial style. This fourth dimension was identified as a "participative" management style and was retained for further analysis.

Computing mean factor scores for work groups was accomplished by grouping all factor scores for cases with identical structure codes. In order to improve the statistical significance of the mean scores, groups with two cases or less were eliminated from further analyses except groups with the last four digits 1000 and 1009 of the structure code. These codes represented managers in the top levels of command. The majority of individuals reporting directly to these managers are middle level managers which are identified with their own work groups by the structure codes. Therefore, structure codes associated with these positions are typically few in number. In spite of this, it was thought that attributes of the top level managers were significant to the research. Mean factor scores for these work groups were therefore retained for inclusion in the analysis. By this method, mean factor scores for 570 cases representing 570 different managers were obtained.

CLUSTER ANALYSIS

Overview

Definition. Cluster analysis is a term which is used to refer to any of a number of techniques used in the investigation of data obtained from the measurement of various characteristics of an assortment of people or objects. The objective of cluster analysis is to determine if the people or objects can be subdivided into clusters or groups which, on the basis of the measured characteristics, can be shown to be somehow similar to one another (Everitt, 1977). Cluster analysis which is concerned with groupings of people is more commonly referred to as "profile analysis" (Nunnally, 1967). A "profile" of a person is represented by a curve derived by graphically plotting any series of scores representing measured characteristics of variables of that person. A group of individuals with similar curves or profiles of the same measured variables are thought to share some underlying attribute or situation that may influence behavior.

Profile Information. In his book, Psychometric Theory, Nunnally (1967) describes three major types of information in the profile of scores for any person: level, dispersion, and shape. The level is defined by the mean of all the variable scores in the profile. The dispersion, sometimes referred to as scatter, reflects how widely scores in a profile diverge from the level. Dispersion is

the standard deviation of scores in a person's profile. The shape is defined by the rank order of scores for each person. One person may be high in the second characteristic score whereas another person may be highest in the third characteristic score. Therefore, shape may be thought of as describing the significant influence on a person's behavior.

Q-Type Factor Analysis

The purpose of profile analysis is very similar to that of factor analysis. Factor analysis and profile analysis both begin with a rectangular data matrix, with variables appearing on the comumns and persons represented by rows. Factor analysis is typically used to examine relationships between the columns to identify clusters of variables. Profile analysis, on the other hand, is concerned with relationships among the rows. Clusters identified over the rows represent people that are most similar to one another or most different from other clusters on the basis of variables measured by the columns. Q-type factor analysis is a variation of factor analysis in which the rows and columns of the data matrix are transposed (Nie and others, 1975; Nunnally, 1967). Because of the apparent simplicity of this approach using SPSS subprogram FACTOR, considerable effort was expended in this research in an attempt to cluster work group managers and situations using Q-type factoring. However, for reasons which will be discussed in the

following chapter, Q-type factor analysis failed to produce clusters which could be reproduced in repeated samples of the work groups. Therefore, the remaining discussion will be directed to other clustering techniques.

There are many clustering techniques and their virtues described in literature which vary in the approach for optimizing some predetermined clustering criterion (Everitt, 1974). One of the most commonly used methods is the "agglomerative" method which is classified as a subdivision of the "hierarchical" technique of cluster analysis (Everitt, 1977). The basic approach of the agglomerative methods is through a series of successive fusions of N members into groups based on measures of similarity or distance. These methods begin with the computation of an intermember similarity or distance matrix and produce a tree-like dendrogram showing the results of clustering. Fusion at any stage occurs between members or clusters which are most similar or closest in distance.

Similarity Measures

The first stage in the agglomerative method is the conversion of the n x p data matrix into n x n matrix of similarities or distances. Similarity scores are expressed by product-moment correlation coefficients which measure the degree of relationship between two variables in the form of standard scores. There are a number of computer software programs available to make the conversion from

standardized scores to correlation coefficients relatively simple and easy. However, Nunnally (1967) points out that correlation coefficients are sensitive only to similarities in shape and not to similarities in level and dispersion. The mechanics of computing correlations equates all profiles at level equal zero and standard deviation equal 1.0. Nunnally uses a good example to illustrate this shortcoming of similarities. If a moron and a genius had exactly the same profiles on tests of abilities the correlation coefficient would be 1.00, but this would hide the fact that they differ greatly in level of ability.

Distance Measures

Conversion of input data to a distance matrix is considered more appropriate for clustering since distance (D) accounts for similarity of profile level, dispersion, and shape. D is simply the distance between two points corresponding to the profiles of two persons. All the scores for one person on p variables define one point in p-space of variables. The point for the person summarizes all the information in the profile. D is obtained from the Pythagorean Theorm for the distance between two points in Euclidean space. The distance between the points for persons a and b (D_{ab}) for p variables is the square root of the sum of squared differences on the profile variable.

$$D_{ab} = \left[\sum_{i=1}^{p} (X_{ai} - X_{bi})^2\right]^{\frac{1}{2}} \qquad (4\text{-}1)$$

Alternative Approach

It would seem from the above that an appropriate profile analysis should be based on a n x n symmetric matrix of distances. However, a software program was not immediately available for deriving a distance matrix and performing profile analysis utilizing such a matrix. Because of this and the limited time available for this research, an alternative approach was used which incorporates both similarity and distance measures. This approach is thought to account for profile similarities of shape, level, and dispersion to a fairly accurate degree.

CLUSTERING APPROACH

ACLUS

Profiles were first isolated in samples of the work groups using an agglomerative clustering algorithm (ACLUS) developed by McNichols (1978) which uses an externally generated similarity matrix to control the clustering process. The logical sequence of operation of ACLUS is shown in Figure 4-1. ACLUS can cluster up to a maximum of 110 objects. Computations begin with each object in a separate cluster. If n objects are input to the algorithm, n-1 iterations will be performed, hierarchically merging all variables into a single cluster. A summary of clustering actions showing the average "within" and "between" similarities at each iteration is output from ACLUS. An optimal dendogram

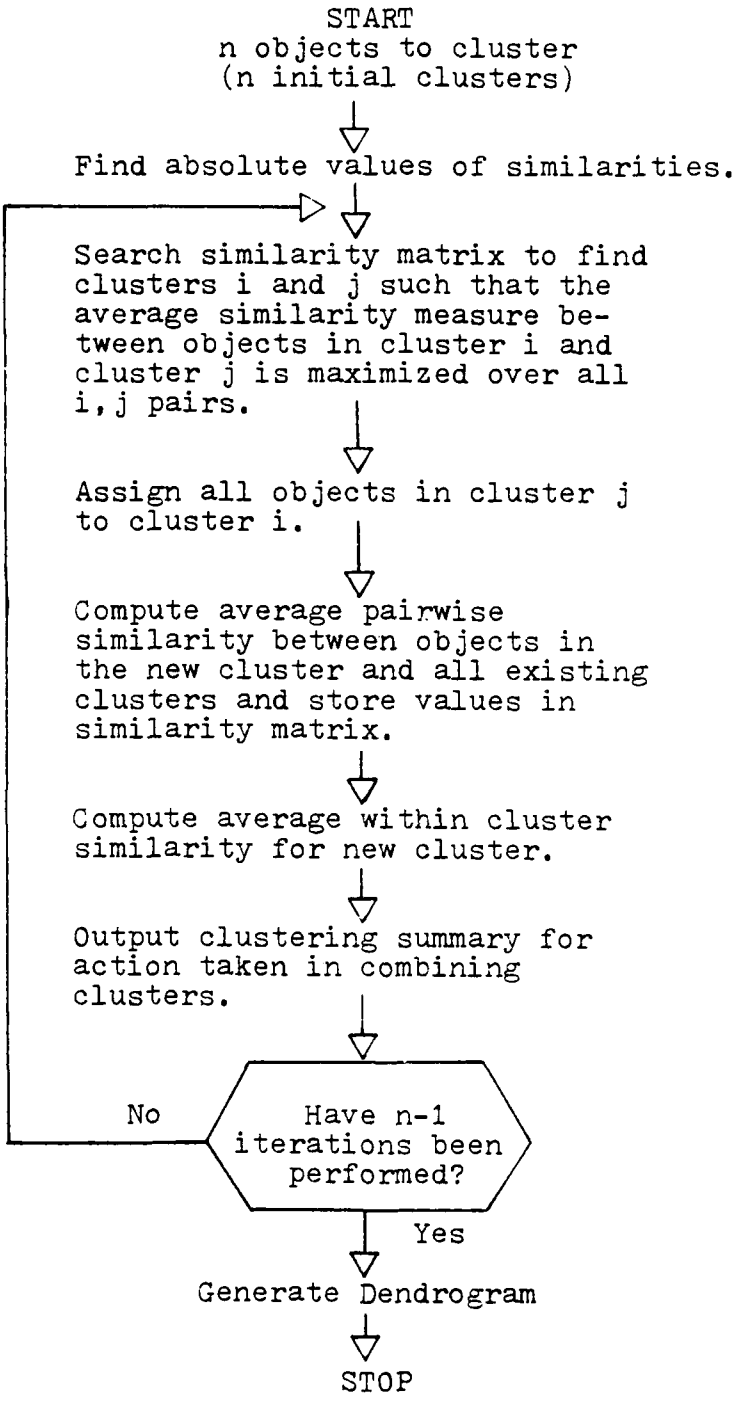


Fig. 4-1. Logical Sequence of ACLUS (adapted from McNichols, 1978)

of clustering results can also be obtained. Determination of the number of clusters that are significantly different is made by reference to the summary and dendogram.

Distance

Several samples were subjected to ACLUS analysis to identify predominate similarly shaped profiles that reoccurred in each sample. Each of the 570 cases were then compared to the profiles selected and assigned to the profile on the basis of the closest diatance as measured by equation (4-1). Cases for which the closest distance exceeded a predetermined value were excluded from further analysis. In this way, consideration was given to similarity of profile level and dispersion.

Profile Variables

Ideally, factor scores for all four factors identified from data in the Supervisory Inventory section of the OAP should be included as variables to define management style profiles. Also all eight factors should be used to define the situational profile. However, due to the amount of variation present in the data, cluster analysis of profiles of this complexity could not produce enough similar cases in each cluster from the 570 cases available for subsequent analysis. Therefore, three factors each were selected to define the management style profile and the situational profile. Although any three-way combination of

the factors could have been selected for this research, those chosen were thought to represent management styles and situational conditions typical of the military environment.

Management Style Profile Variables

First Variable - Supervisor Assistance/Feedback. "Supervisor Assistance/Feedback" was the first factor extracted in the principal component analysis accounting for 53.9 percent of the variance in the Supervisory Inventory data. Key words in the questions which loaded heavily on this factor were "helps", "respects", "interested", "supports", "gives feedback", and "keeps me informed". Therefore a manager with a high score on this factor could be considered people-oriented or high in consideration as was discussed in the previous chapter.

Second Variable - Management-Supervision. The second factor chosen for profile definition was labeled "Management-Supervision" by Hendrix and Halverson (1979a). The four questions which loaded most heavily on this factor are:

(404) My supervisor is a good planner.

(405) My supervisor sets high performance standards.

(412) My supervisor establishes good work procedures.

(413) My supervisor has made his responsibilities clear to the group.

A manager scoring high on this factor would be perceived as an effective manager who encourages goal setting and teamwork.

Third Variable - Autonomous Control. "Autonomous Control" was selected as the third variable of the profile. Only two questions from the OAP could be identified with this factor from the rotated factor loadings.

(419) My supervisor overemphasizes the need to accomplish more than other groups.

(421) My supervisor over controls my work.

A high score on this factor would indicate a manager that was perceived to exert excessive control over the actions of his subordinates.

Situational Environment Profile Variables

First Variable - Job Enrichment. The first factor selected was the first extracted by the principal component analysis from the Situational Environment section of the OAP and accounted for 24.9 percent of the variance of that data. This factor was labeled "job enrichment" by Hendrix and Halverson. From an examination of the rotated factor loadings, it is evident that pride in the job and affect of the job on others are the significant elements of this situational dimension.

(203) To what extent is your job significant in that it affects others in some important way?

(210) To what extent does doing your job well affect a lot of people?

(215) To what extent are you proud of your job?

(243) To what extent does your work give you pride and feeling of self worth?

A high score reflects a situation where people are proud of their work which affects other people.

Second Variable - Freedom/Autonomy. "Freedom/Autonomy" was the fifth factor extracted and represents the linear combination of two questions both relating to freedom and independency of workers at their job. A high score reflects an autonomous job environment.

Third Variable - Work Repetition. "Work Repetition" also represents the linear combination of two questions each measuring the degree of repetition in the work performed. A high score indicates a job environment in which the same task is repeated frequently.

SELECTION OF PROFILES

ACLUS Input

Since the ACLUS program can cluster only 110 objects, the 570 cases were randomly divided into six samples of 95 cases each. Three samples each of the selected management style factor scores and situational factor scores were input to the ACLUS program for analysis.

Number of Clusters

A major decision to be made when using any clustering technique is how many clusters to allow to best

represent the data. A valid criterion on which to base this decision could not be found although many suggestions are available in the literature (Everitt, 1977). One reasonable suggestion has been to examine the dendrogram of clustering results for the number of iterations between successive merging of objects. The assumption is that the number of iterations between the merging of two objects or sets of objects would indicate a measure of similarity or distance within and between the sets. However, because within and between similarities for each iteration are presented numerically in the ACLUS output, these were used as the criteria for the number of clusters for this research. A within cluster and between cluster similarity of .9 was selected as the lowest measure for merging of object sets. These criteria resulted in 10 separate clusters in five samples and 11 clusters in the sixth.

Dominate Profiles

Mean factor scores were computed from the cases in each cluster of each sample. These mean scores represent the group profile for each of the clusters obtained. Group profiles from the three samples of management style scores were then compared. The objective of this comparison was to identify profiles evident in repeated sampling and which represented the largest number of cases in the three samples. The three dominate management style profiles were identified

as references in subsequent analysis. Three reference situational profiles were identified by the same process.

APPLYING DISTANCE CRITERION

Minimum D

D measures for each of the 570 case management style and situational profiles were computed using equation (4-1) and the reference profiles from the previous step. Each case was identified with the closest reference profile (minimum D) unless the minimum D exceeded a predetermined reject value. Cases whose minimum D values exceeded the reject value were discarded.

Ideally, this reject value should be as small as possible to insure that an appropriate degree of profile similarity is retained. However, the limiting factor is the number of cases that are necessary in each reference profile for subsequent analysis. The smaller the reject value, the smaller the sample size in each profile. Both factors were considered in selecting a reject value.

ANOVA

Overview

The final step in the research was to perform a two-way analysis of variance (ANOVA) to determine the simultaneout effects of management style and situational environment on work group effectiveness. Management style represents

an independent variable in the analysis and will be referred to as "factor A" with factor levels represented by rows of the ANOVA matrix. Situational environment as the second independent variable will be referred to as "factor B" with factor levels represented by columns of the matrix. Combinations of three levels of factor A with three levels of factor B represent the possible treatments on the population of work groups. Factor scores representing quantitative measures of three criteria of effectiveness; organizational climate, perceived productivity, and a job satisfaction were used as dependent variables, one in each of three separate analysis.

Variation in observed values of the dependent variable may be attributed to one or more sources. Variation attributed to variation in the two independent variables are called "main effects". Variation which cannot be attributed to the factors acting alone, but to joint effects of the two acting together is called "interaction effect". Variation not attributed to main effects or interaction effect is the unexplained effect that is associated with random error. The objective was to determine if different effects are associated with different possible treatments.

Partition of Variance

The variability of all the observed values of the dependent variable is proportional to the sum of squares of

deviations about the population mean. The measure of variability is called "total sum of squares of deviations" (TOTAL SS). The ANOVA procedure partitions the TOTAL SS into parts. Each part is attributed to a particular source and referred to as the sum of squares of that source. The variation due to main effects is the sum of squares of factor A (SSA) and sum of squares of factor B (SSB). Variation due to the interaction effect is the sum of squares of factor A and factor B (SSAB) and sum of squares of error (SSE) refers to variation from random error.

F Ratio Test

When the variance of the dependent variable is related to a main effect or interaction effect, the proportion of the TOTAL SS attributed to that source will tend to be large. This can be detected by comparing the estimated variance associated with that source to the estimated error variance using an F test. If the estimate for factor variance or interaction variance is significantly larger than the estimated error variance (denoted by large values of F), the F test will reject a hypothesis of "no effect" and produce evidence to indicate a relationship with the dependent variable.

Mean Squares

Estimates of variance are represented by mean squares obtained by dividing the partitioned sums-of-squares by their

associated degrees of freedom. If there are n total observations, a levels of factor A, and b levels of factor B, then;

$$MSA = \frac{SSA}{a-1} \tag{4-2}$$

$$MSB = \frac{SSB}{b-1} \tag{4-3}$$

$$MSAB = \frac{SSAB}{(a-1)\ (b-1)} \tag{4-4}$$

$$MSE = \frac{SSE}{ab(n-1)} \tag{4-5}$$

Fixed Effects Model

The following fixed effects model expresses the conceptual basis of the two-way ANOVA for fixed categories of factors;

$$X_{ijk} = \mu + \alpha_j + \beta_k + \alpha\beta_{jk} + \epsilon_{ijk} \tag{4-6}$$

where:

X_{ijk} = $i^{\underline{th}}$ observation of treatment jk,

μ = overall population means,

α_j = main effect for factor A at $j^{\underline{th}}$ level,

β_k = main effect for factor B at $k^{\underline{th}}$ level,

$\alpha\beta_{jk}$ = interaction effect of treatment combination jk,

ϵ_{ijk} = error effect on $i^{\underline{th}}$ observation of treatment jk.

Hypothesis Testing

Three tests of hypothesis are associated with a two-way ANOVA. Two tests are concerned with the main effects of the factors. The significance of the main effect of management style is determined by testing the hypotheses of no factor A effect;

$$H_o: \alpha_j = 0, \qquad \text{all } j$$

$$H_1: \alpha_j \neq 0, \qquad \text{some } j$$

This hypotheses is tested by the F ratio;

$$F = \frac{MSA}{MSE} \tag{4-7}$$

with a-1 and ab(n-1) degrees of freedom.

Similarly, the significance of the main effect of situational environment is determined by testing the hypotheses of no factor B effect;

$$H_o: \beta_k = 0, \qquad \text{all } k$$

$$H_1: \beta_k \neq 0, \qquad \text{some } k$$

tested by the F ratio;

$$F = \frac{MSB}{MSE} \tag{4-8}$$

with b-1 and ab(n-1) degrees of freedom.

The primary purpose of this research was concerned with the third statistical test made by the ANOVA. The conceptual foundation of the Three Component Model is based on the premis that there is a significant interaction effect

of management style and situational environment on the effectiveness of the work group. The presence of an interaction effect is determined by the ANOVA by testing the hypotheses of no interaction effect;

$$H_o: \alpha\beta_{jk} = 0, \qquad \text{all } j \text{ and } k$$

$$H_1: \alpha\beta_{jk} \neq 0, \qquad \text{some } j \text{ or } k$$

tested by the F ratio;

$$F = \frac{MSAB}{MSE} \tag{4-9}$$

with (a-1)(b-1) and ab(n-1) degrees of freedom. A large value of F indicates interaction.

Assumptions

The following assumptions were made when applying the *F ratio test in the fixed effects model for ANOVA* (Hays, 1964).

1. The errors ϵ_{ijk} are normally distributed.

2. The errors ϵ_{ijk} have exactly the same variance for each treatment jk.

3. The errors ϵ_{ijk} are independent, both within each treatment jk, and across treatments.

ANOVA Program

The SPSS subprogram ANOVA was used to perform the analysis of variance for the research (Nie and others, 1975).

CHAPTER V

RESULTS

INTRODUCTION

This chapter presents the results of the analysis used to answer the research question. Results are presented for ACLUS clustering and the analysis of variance.

CLUSTERING

Q-Type Factoring

As was indicated in the previous chapter, an abortive attempt was made to perform the cluster analysis using Q-type factor analysis. The SPSS sub-program FACTOR which routinely handles R-type factor analysis was used by inputing a transposed data matrix (Nie and others, 1975). The factors (clusters) extracted represent the best linear relationships of cases on the basis of variance explained in the profile variables. It was thought this would adequately identify similar case profiles. However, it was found that the FACTOR program was not able to identify enough clusters to adequately represent the data. In every sample, the number of clusters extracted was one less than the number of profile scores used (i.e., when a transposed data matrix of four profile scores (rows) by 95 cases (columns) was

analyzed, all the cases were forced into one of three clusters). This resulted in a different set of group profiles obtained for each sample of cases analyzed. Therefore, this method of analysis was found to be ineffective in establishing reliable management style or situational profiles.

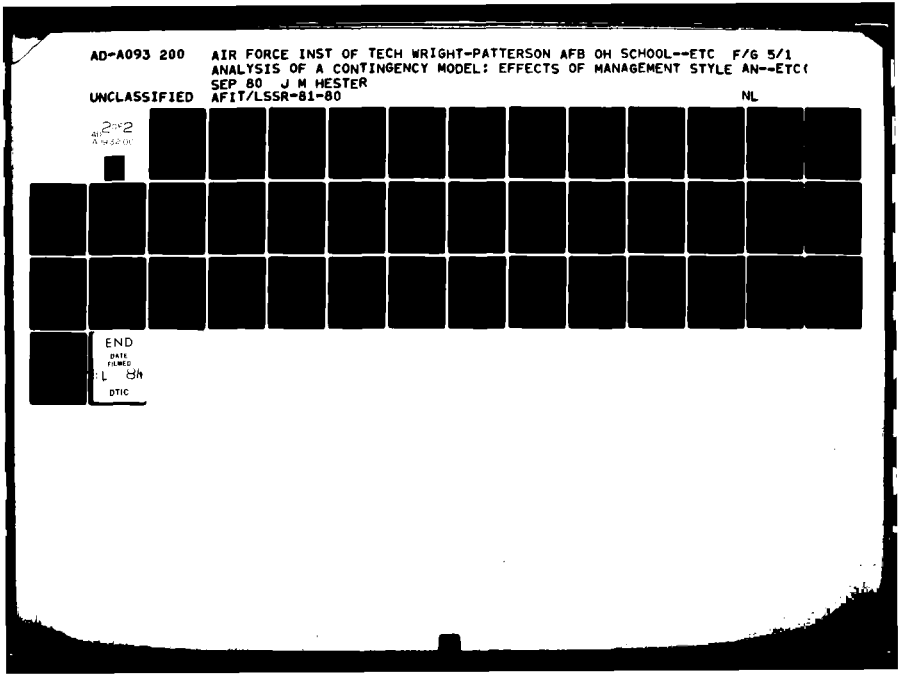
ACLUS

The three dominate management style profiles extracted by the ACLUS program are shown in Figure 5-1. These profiles represent the greatest percent of cases in three samples analyzed (95 cases per sample). The percentage of cases represented by each set of profiles is shown in Figure 5-1. Also, the mean management style factor scores from all cases identified with each set of profiles is shown along the horizontal axis below the factor number. The mean scores were those used to establish the reference profiles in determining distance measures for case profiles. The ACLUS extracted situational environment profiles are shown in Figure 5-2.

Profile Interpretation

A very brief comment is presented below for each of the reference profiles. It should be noted that these comments are purely subjective and other interpretations of the profiles are possible.

Management Style 1 - Administrator. Managers adopting this style, which shall be labeled "administrator",


AD-A093 200
AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL--ETC F/G 5/1
ANALYSIS OF A CONTINGENCY MODEL: EFFECTS OF MANAGEMENT STYLE AN--ETC(
SEP 80 J M HESTER
UNCLASSIFIED AFIT/LSSR-81-80
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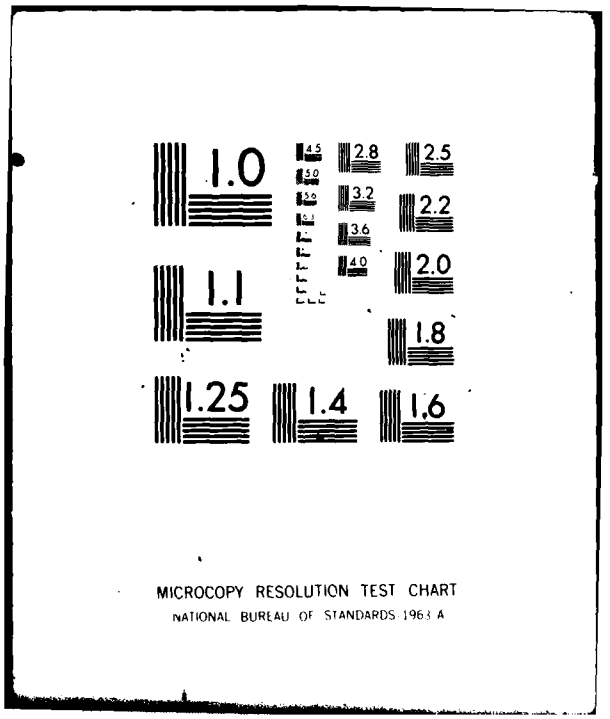
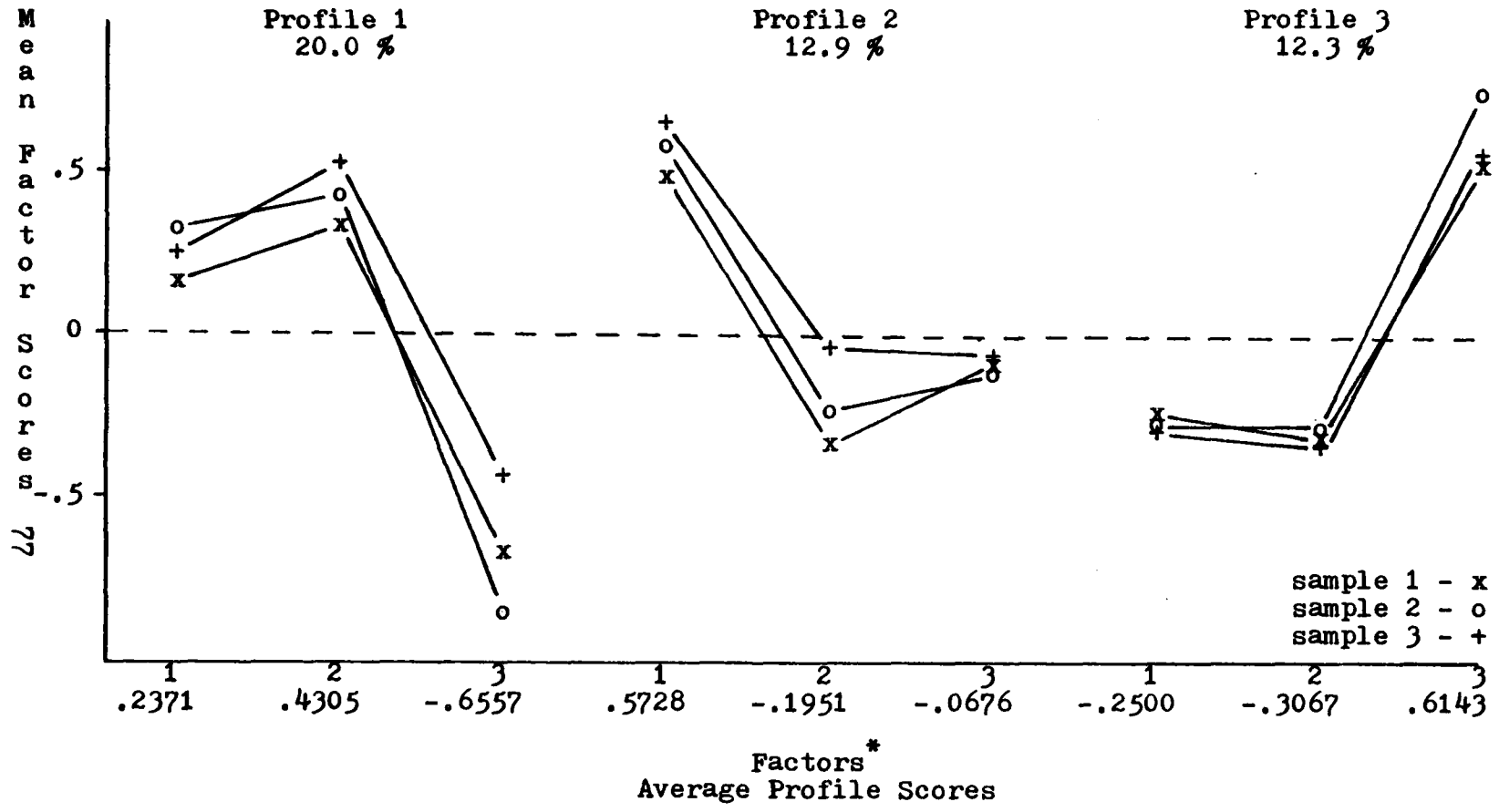
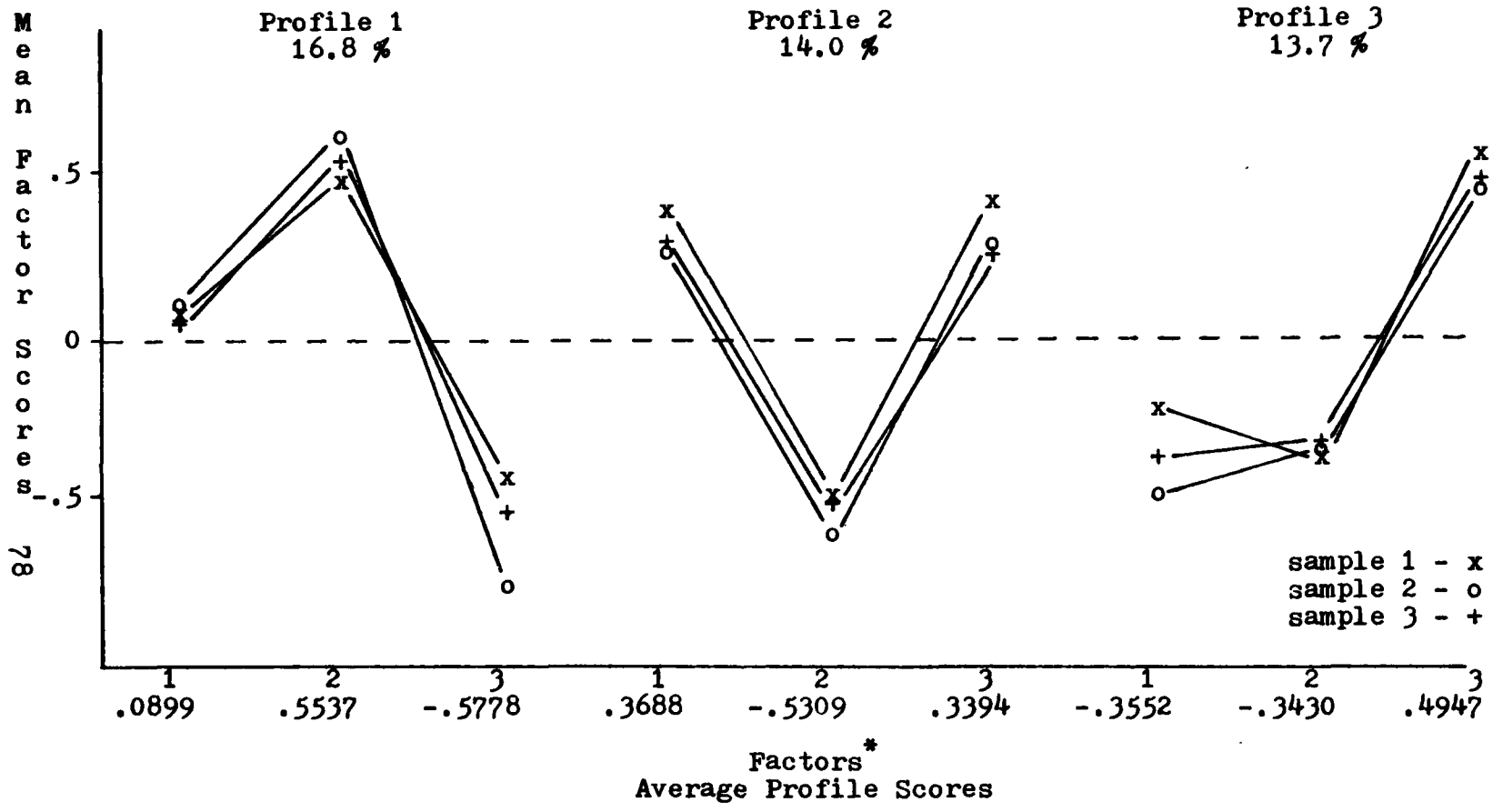

1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A



*1 - Supervisor Assistance/Feedback
2 - Management/Supervision
3 - Autonomous Control

Fig. 5-1. Management Style Profiles
ACLUS Analysis



*1 - Job Enrichment
2 - Freedom/Autonomy
3 - Work Repetition

Fig. 5-2. Situational Environment Profile
ACLUS Analysis

are perceived by their subordinates slightly favorably in terms of consideration and moderately favorably in overall management skills. It is apparent from the very low score on factor 3, autonomous control, that this manager does not become personally involved in the work process but rather allows subordinates a great deal of autonomy in the process of accomplishing their tasks.

Reddin (1970) described the manager with this style, who he labeled "the executive", as one who was concerned with both task and relationship dimensions. He sets standards of performance and sees his job as effectively maximizing the efforts of others to achieve these standards. He recognizes that each of his subordinates has different goals and expectations and must therefore be treated differently.

Wofford (1971) labeled the managerial behavioral dimension, which is most dominant in this style, as "group achievement and order". Hendrix (1976), using Wofford's description, labeled the same dimension "group processing". Wofford and Hendrix suggest that this style refers to the manager who uses group process in decision making, organizing, motivating, and communicating. He is planful, thorough, highly organized, and orderly. According to Wofford and Hendrix, this manager assumes the role of the professional administrator and is concerned with the effective managerial conduct of his job.

A manager who is able to leave the details of the work process to subordinates can devote more of his time to the long-range planning and other managerial activities. He is also able to establish closer psychological relationships with subordinates who he does not have to control constantly.

Management Style 2 - Good Old Boy. The high score on assistance and feedback in this profile indicates a manager who is very people-oriented in his management style. The slightly negative score on management skills may indicate that too much time is spent in personal interactions so that other responsibilities are neglected.

The management style identified by this profile has been defined by many behavioral scientists in literature using various behavioral factors. In the Ohio State Studies (Flieshman, 1953) the dichotomized leadership behavior labeled "consideration" may be included among factors characterizing this style. Consideration reflects the extent to which leaders are likely to have job relationships characterized by respect and consideration for subordinates. Other labels as "support" (Bowers and Seashore, 1966), and "dynamic interacting" (Hendrix, 1976) have been used to describe behavioral factors associated with this style. Wofford described this manager, who he labeled "personal interacting", as one who is friendly, warm, and informal.

Further, "he spends much of his time chatting with his men and often works with his men to complete their daily assignments (1971, p. 11).

The near neutral score for autonomous control for this profile may indicate the manager with too frequent interaction and interest in his or her subordinates. However, directions, when given, are perceived to be helpful and more acceptable than from other managers.

Management Style 3 - Autocrat. The third management style profile extracted from the data is characterized by the high degree of control he must, or chooses to exert over his subordinates. This degree of control is perceived to be excessive by subordinates. This manager is concerned with task accomplishment to the extent that he devotes most of his time to controlling, directing, and monitoring the performance of subordinates.

Levin, Lippit and White (1939) first categorized the "autocratic" leadership style in reference to the leader or manager who, on most occasions, ultimately dictates what, how, and when things are done. The factor characteristic of this style identified by the Ohio State Studies (Fleishman, 1953) was labeled "initiation of structure". Initiation of structure refers to the degree to which a manager influences group interactions toward goal accomplishment. Bowers and Seashore (1966) called this "goal emphasis".

Wofford (1971) identified a dimension of behavior he called "personal enhancement" which may be associated with an autocratic style of management. This dimension, which was also called "self-enhancing" by Hendrix (1976), was used by Wofford to describe the manager who uses his authority as the primary means of influencing subordinates. This manager "is outspoken, and demanding, and emphasizes accomplishing his goals and carrying out his ideas and plans (1971, p. 11)."

Dislike for this type of manager by subordinates may prejudice their perception of his management skills. This may, to some extent, account for the low scores on factor 2 of this profile.

Situational Environment 1 - Inspect and Repair. The situational environment as described by the selected factor which is most dominate in the data is characterized by tasks that privide workers with variation and a high degree of autonomy in their job. These tasks are typically represented by inspect and repair jobs. The jobs present the worker with a unique problem for which he or she must identify the source and nature to determine the approach and method of repair. Jobs of this type range from CE, aircraft repair, and law enforcement to flight operations, R & D, and medicine. In these situations, because each task is unique, the subordinate is given freedom in the process of solving or repairing the problem.

The near neutral score on the first factor was unexpected because variation and autonomy are factors usually correlated with an enriching job. However, as was noted in the previous chapter, the job enrichment factor in the data is principally determined by the degree of pride in the job and the affect of the job on others. The unexpected score on job enrichment may result from low instrumentality of the jobs described for achieving pride in the job.

Situational Environment 2 - Customer Service. In this environment a moderately high degree of job enrichment is present with repetitive tasks and very little task autonomy. This type of job provides workers with a sense of pride from helping others. Jobs of this nature which are repetitive and standardized are found in the customer service jobs in finance, personnel, housing, transportation, and other similar service organizations. These jobs usually involve assisting the customer with filling out and processing standard forms for acquiring services or benefits which the organization provides or controls.

Situational Environment 3 - Unstimulating Routine. The third situational profile, like the second, is low on autonomy and high on repetitive work. But this profile is characterized by a low score on job enrichment. This situation is typical of many military jobs that are very standardized and routine in which variation from prescribed methods is discouraged. This situation is found in jobs

such as security, food service, grounds keeping, and others which contains very little interest and stimulation in the job itself. These jobs are generally lacking in elements of job enrichment.

Distance Measures

Case Profiles. For each of the 570 case profiles for management style and situational environment, the distance was calculated between the respective profile and each of the reference profiles. The case was identified with the reference profile which was closest unless the closest distance exceeded a predetermined distance (Reject D).

Reject D. Reject D was determined by an iterative trial-and-error method. In the first trial a very small reject D value was used to eliminate cases. Then, using SPSS subprogram CROSSTABS (Nie and others, 1975) the joint frequency distribution was determined for those cases identified with the reference profiles. The objective was to insure an adequate number of cases in each joint distribution for the subsequent ANOVA. The iterations were continued, increasing the reject D value until the number of cases in the smallest cell was represented by seven cases (See Table 5-1). The value where this occurred was D = .707 (D^2 = .05).

TABLE 5-1

CROSSTABS
MANAGEMENT STYLE BY SITUATIONAL ENVIRONMENT
REJECT D = .707

		SITENVIR			
	COUNT / ROW PCT / COL PCT / TOT PCT	1	2	3	ROW TOTAL
MGTSTYLE					
1		29	13	9	51
		56.9	25.5	17.6	31.9
		46.8	25.0	19.6	
		18.1	8.1	5.6	
2		26	15	23	64
		40.6	23.4	35.9	40.0
		41.9	28.8	50.0	
		16.2	9.4	14.4	
3		7	24	14	45
		15.6	53.3	31.1	28.1
		11.3	46.2	30.4	
		4.4	15.0	8.8	
COLUMN TOTAL		62 38.7	52 32.5	46 28.8	160 100.0

ANOVA

Summary Tables

The summary from the ANOVA analyses for each of the three criteria of effectiveness variables are shown in Tables 5-2, 5-3, and 5-4. For each of the ANOVAs the decision rule is based on the probability of a Type I error of $\alpha = .05$; that is, P(rejecting H_o when H_o is true) = .05. The summary

TABLE 5-2

ANALYSIS OF VARIANCE SUMMARY
ORGANIZATIONAL CLIMATE BY
MANAGEMENT STYLE AND SITUATIONAL ENVIRONMENT

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	16.279	4	4.070	17.295	.001
MGTSTYLE	4.445	2	2.223	9.445	.001
SITENVIR	6.751	2	3.375	14.343	.001
2-WAY INTERACTIONS	.289	4	.072	.307	.873
MGTSTYLE SITENVIR	.289	4	.072	.307	.873
EXPLAINED	16.569	8	2.071	8.801	.001
RESIDUAL	35.533	151	.235		
TOTAL	52.102	159	.328		

TABLE 5-3

ANALYSIS OF VARIANCE SUMMARY
PERCEIVED PRODUCTIVITY BY
MANAGEMENT STYLE AND SITUATIONAL ENVIRONMENT

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	12.239	4	3.060	14.385	.001
MGTSTYLE	5.990	2	2.995	14.082	.001
SITENVIR	3.135	2	1.567	7.369	.001
2-WAY INTERACTIONS	.679	4	.170	.798	.528
MGTSTYLE SITENVIR	.679	4	.170	.798	.528
EXPLAINED	12.918	8	1.615	7.592	.001
RESIDUAL	32.116	151	.213		
TOTAL	45.034	159	.283		

TABLE 5-4

ANALYSIS OF VARIANCE
JOB SATISFACTION BY
MANAGEMENT STYLE AND SITUATIONAL ENVIRONMENT

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F	SIGNIF OF F
MAIN EFFECTS	20.417	4	5.104	23.755	.001
MGTSTYLE	1.433	2	.717	3.336	.038
SITENVIR	13.917	2	6.959	32.385	.001
2-WAY INTERACTIONS	1.539	4	.385	1.791	.133
MGTSTYLE SITENVIR	1.539	4	.385	1.791	.133
EXPLAINED	21.956	8	2.745	12.773	.001
RESIDUAL	32.446	151	.215		
TOTAL	54.402	159	.342		

tables show the F test statistic (F ratio) for each test and a value above which F is significant (p). F is significant, that is, in the reject region when $F > F\alpha$. Thus, the decision rule for all tests of hypotheses is;

Decision Rule: If $p < .05$ reject H_o in favor of H_1; otherwise accept H_o.

The ANOVA results indicate that F is significant at $p < .05$ for all of the tests for main effects. The results also indicate that F is not significant at $p < .05$ for interaction effect in either of the three ANOVAs.

Cell Means

The summaries of cell means from the ANOVAs are shown in Table 5-5. The table shows the total population mean, the level means for each factor and a matrix of sample means for each treatment.

TABLE 5-5

ANOVA MEANS FOR
TREATMENTS - MAIN EFFECTS - TOTAL POPULATION

Organizational Climate

		Situational Environment 1	2	3	row
Management Style	1	.57	.24	-.03	.38
	2	.37	.02	-.11	.12
	3	.14	-.33	-.32	-.25
column		.44	-.09	-.16	total .10

Perceived Productivity

		Situational Environment 1	2	3	row
Management Style	1	.46	.47	.18	.41
	2	.34	.06	-.16	.10
	3	-.13	-.17	-.29	-.20
column		.34	.06	-.13	total .11

Job Satisfaction

		Situational Environment 1	2	3	row
Management Style	1	.44	-.17	.15	.23
	2	.55	-.24	-.26	.08
	3	.19	-.31	-.47	-.28
column		.46	-.26	-.24	total .03

CHAPTER VI

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

SUMMARY

Purpose

The purpose of this research was to determine if the OAP currently used by LMDC in their OD consultation program provides valid data that can adequately measure factors which significantly affect the effective performance of military organizations in accomplishing their objectives.

Research Question

The approach to the study began with a research question concerning the contingency view of the Three Component Organizational Effectiveness Model from which the OAP was developed.

> Is one management style more effective than another in a specific situational environment?

Profile Analysis

Profiles of three management styles and three situational environments were isolated by cluster analysis from data collected by LMDC using the OAP.

Hypothesis Testing

The management styles and situational environments were subjected to three two-way ANOVAs using different criteria of effectiveness as dependent variables. Three hypotheses were tested in each of the ANOVAs.

1. Management style does not affect organizational effectiveness.

2. Situational environment does not affect organizational effectiveness.

3. The interaction of management style with situational environment does not affect organizational effectiveness.

CONCLUSION

Results

The study produced evidence that the style of management employed has a measurable affect on the criteria of organizational effectiveness. Comparison of cell means (Table 5-5) produced by the ANOVAs indicate that for the criteria, organizational climate and perceived productivity, the management style identified as "administrator" was the most effective of those investigated in each of the situational environments tested. For the criterion of job satisfaction, the administrator is also most effective except in the situational environment called "inspect and repair" where the management style labeled "good old boy" produces the best results.

Different situational environments were also found to exert influence on the criteria of effectiveness. For

all criteria, greater effectiveness was found to occur in the situational environment labeled "inspect and repair".

The research did not produce evidence to support the contingency view of the model. The statistical tests in the three ANOVAs all failed to reject the hypothesis of no interaction effects. Therefore, the research question cannot be answered affirmatively. Because of this and limitations in the research procedure described later in this chapter, the results of the study are considered inconclusive, and opinion must be reserved until a more thorough test has been performed.

It should be emphasized that the construct validity of the OAP has been previously established and its usefulness in measuring relevant factors of organizational functioning is recognized. The purpose of this study focused on the relationships of the measured factors as conceptualized by the Three Component Model. The failure of the study to confirm the validity of these relationships does not negate their existence or the possibility of validation by the approach used in this study with limitations removed or other approaches.

Limitations

Several limitations were noted in the study which were thought to affect the results of the study. The limitations were seen in the number of work groups in the data examined and in the clustering technique used.

Small N. In Chapter IV of this report, it was described how 570 sets of work group factors were obtained from 4,786 cases of survey data. All subsequent analyses were performed using the factor scores from the 570 work groups.

During the cluster analysis it was found that considerable variation existed in the work group factor scores. As a result, a relatively large number of clusters were needed to adequately represent the data. As the number of clusters isolated were increased, the smaller were the number of work groups in each cluster. Therefore, each possible cluster was represented by only a small percentage of the total work groups available for analysis. The problem arose in the ANOVA where combinations of management styles with situational environments were examined. The joint frequency distribution of the many small clusters was too low for any meaningful analysis.

In order to overcome this limitation it was necessary to make restrictions regarding the definition and selection of the management styles and situational environments for the analysis. First, it was necessary to use only three factors from the supervisory inventory section of the OAP to define the management styles to be included in the analysis. Also, only three factors from the associated section of the OAP could be used to define the profiles of the situational environments to be used in the subsequent

analysis. Reducing the complexity of the profiles by limiting the number of factors defining them had the effect of requiring less clusters to represent the data. Hence, each possible cluster was represented by a greater number of work groups.

Second, only the three most dominant profiles representing the greatest percentage of the available work groups were used in defining management styles and situational environments. While these two restrictions were not thought to reduce the validity of this research, it does reduce the significance of the study by preventing testing the validity of the model as representing the more comprehensive variety of factors actually found in military organizations.

However, a third concession was made due to the small N limitation which may have had a greater affect on the results of the study than the previous two restrictions. This was discussed in the previous chapter in the discussion of Reject D. Work group cases which were not similar to one of the reference profiles were rejected from inclusion in each ANOVA on the basis of the maximum permissible distance from the closest of the reference profiles. As was explained in Chapter V, the Reject D value was incrementally increased until the joint frequency for each of the style-situation combinations was large enough to perform a meaningful ANOVA. The effect of increasing the Reject D value was to allow some cases which were more similar to

other unselected profiles to be identified with the reference profiles. The true definition or identify of the reference profiles was, therefore, contaminated to some extent by the inclusion of these "other" cases. A larger data base of work group cases would have reduced or eliminated the need to augment the reference profiles with the less similar cases.

Cluster Analysis. A second limitation was found in the study which reduced the effectiveness of the research. This limitation concerns the non-accessibility of an adequate cluster analysis technique. This limitation was discussed in part in Chapter IV in the section on cluster analysis. As was explained, clustering on the basis of correlation measures accounts only for similarities of profile shape and does not consider the importance of profile level or dispersion. This limitation was overcome in the research in an indirect method by combining the ACLUS program, which is based on correlation measures, with the assignment of cases to the isolated profiles by distance measures. However, an agglomerative technique designed to cluster people (or groups) on the basis of a matrix of distance measures would have been more efficient in identifying significant clusters.

One principle reason for this is due to the difficulty in determining the most appropriate number of clusters to represent the data. A decision rule for selecting the significant clusters would have been more valid and less

ambiguous had it been based on distance measures rather than correlation measures. Separation of clusters by distance is somewhat easier to visualize than separation by correlation of factors defining the clusters and therefore easier to distinguish clusters that are truly different. Also, as has been noted before, distance measures account for more characteristics of the clusters than do correlation measures.

Another limitation in the ACLUS program for the purpose of this study added to the difficulty in accurately identifying significant clusters. The maximum number of work group cases that could be analyzed by ACLUS was 110. Because of this and due to the large number of clusters evident in the data, it was necessary to run several samples to determine whether all clusters isolated represented a significant number of work groups or were only random variations in a small number of cases. To obtain a total count of cases associated with each of the isolated clusters, it was necessary to subjectively match profiles of one sample to profiles from other samples. While this was relatively obvious with some profiles, with others it was not obvious and required an intuitive decision. The reference profiles were derived from the average of three sample profiles which were matched in this way. While it is believed that each set of cluster profiles represent the best matching possible, this method allows for some error in the true definition of

reference profiles. A clustering program that is capable of analyzing a larger number of cases would reduce or remove this limitation.

RECOMMENDATIONS

Additional Research

Because the OAP is currently in active use by LMDC as a diagnostic tool for evaluating the health of certain military organizations, the need still exists to validate its usefulness for that purpose. Additional research is, therefore, needed to achieve the same objective of this study - to determine the presence of effects of the management style employed by Air Force managers and the particular situational environment in which they manage on the effectiveness of their organizations.

Remove Limitations

Future research efforts with this objective should attempt to remove the limitations that were identified in this study.

Small N. It was reported in Chapter II that LMDC had collected data in excess of 50,000 cases as of mid-June 1980 using the OAP. Should this data be made available for research, and assuming that adequate computer support would be available to accommodate such a volume of data, the limitation of insufficient work group cases would be eliminated.

Cluster Analysis. Additional studies should attempt to identify management style and situational environment profiles using cluster analysis based on distance measures for reasons discussed earlier in this chapter. One of the computer software programs such as the Statistical Analysis System (SAS) (Helwig and Council, 1979) could be used which contains a clustering subprogram that develops its own distance matrix from the raw data and can analyze up to 250 cases. As an alternative the ACLUS program used in this study may be modified to read from a distance matrix. This would, however, require developing a program to first convert the raw data to distance measures before subjecting it to the modified ACLUS program. A final alternative would be to develop a complete program that could be tailored to the requirements of the research. Considerations for an agglomerative, hierarchical clustering technique may be found in the literature (Everitt, 1974).

Expanded Objectives

Finally, in addition to concentrating on the interaction effect of style and situation, other research should focus on the interaction effects of the third component of the Three Component Organizational Effectiveness Model - the results of using different criteria to evaluate the effectiveness of military organizations. Testing for such three-way interactions were beyond the scope of this study but are needed to provide complete conceptual validity to the model.

APPENDIX

ORGANIZATIONAL ASSESSMENT PACKAGE
(Version 3)

The Organizational Assessment Package (OAP) is a series of surveys for collecting information about you, your job, your work group, your supervisor, and your organization.

The terms **work group**, organization, and **supervisor** are used throughout the OAP and need some clarification. The term **work group** refers to a group of individuals working for the same supervisor, while the term **organization** refers to the overall organizational unit. For example, if your position is within a section of a squadron then the squadron would be your organization and your section would be your work group.

With the exception of the Background Information Section, two types of scales are used in the OAP. Most surveys will have a seven point (1 – 7) scale; however, three inventories will include a zero point (0 – 7) which should be marked if an item is non-applicable. Mark your answers on the separate answer sheet provided. **Please use a number 2 pencil only.** Make heavy black marks that fill the oval-shaped space. For example, using the scale below, if you **moderately agree** with item statement 1 then you would blacken oval number 6 on the answer sheet as shown in the example below.

Scale:

0 = Not applicable
1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Item Statement

1. The information your work group receives from other work groups is helpful.

Answer Response:

( ) 001 (1) (2) (3) (4) (5) ● (7)

Should the above statement not be applicable for you then you would mark the unnumbered oval as shown below.

Answer Response:

● 002 (1) (2) (3) (4) (5) (6) (7)

It is important that you answer **all** items honestly. Only in this way can an accurate description of your organization be obtained.

Summary results only describing your organization will be provided to your organization. In turn, your organization will have the opportunity to present the results to you and discuss them. Your individual responses are confidential, and will **not** be provided to your organization or any other agency. Only those individuals performing this research will have access to your completed OAP.

DO NOT STAPLE OR OTHERWISE DAMAGE THE ANSWER SHEET.

PRIVACY ACT STATEMENT

1. Authority: 10 USC 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.

2. PRINCIPAL PURPOSE(S): This information will be used for Air Force research and development purposes and for organizational problem area identification.

3. ROUTINE USES: Information provided by respondents will be treated **confidentially** and will be used for official research purposes and organizational problem area identification. Information obtain will also be used to improve instruments and techniques for organizational assessment.

4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION: Disclosure of this information is voluntary. The Air Force continues to improve only with your assistance to make additional refinements in management of its resources. Your cooperation in this effort is appreciated.

BACKGROUND INFORMATION

Instructions

The first section of this survey concerns your background. Please use the separate answer sheet and darken the oval which corresponds to your response to each question.

1. You are an:

(901)* 1. Officer
(902) 2. Airman
(903) 3. Civilian (GS)
(904) 4. Civilian (Wage Employee)
(905) 5. Non-Appropriated Fund (NAF) Employee
(906) 6. Others

2. Your grade level is:

(907) 1. 1–3
(908) 2. 4–5
(909) 3. 6–7
(910) 4. 8–9
(911) 5. 10–12
(912) 6. 13–15
(913) 7. 16 or Higher

3. Total months in this organization is:

(914) 1. Less than 1 month.
(915) 2. More than 1 month, less than 6 months.
(916) 3. More than 6 months, less than 12 months.
(917) 4. More than 12 months, less than 18 months.
(918) 5. More than 18 months, less than 24 months.
(919) 6. More than 24 months, less than 36 months.
(920) 7. More than 36 months.

*Number in parenthesis identifies variable for reference only.

4. Total months experience in present job is:

(921) 1. Less than 1 month.
(922) 2. More than 1 month, less than 6 months.
(923) 3. More than 6 months, less than 12 months.
(924) 4. More than 12 months, less than 18 months.
(925) 5. More than 18 months, less than 24 months.
(926) 6. More than 24 months, less than 36 months.
(927) 7. More than 36 months.

5. Your race is:

(928) 1. American Indian or Alaskan Native
(929) 2. Asian or Pacific Islander
(930) 3. Black, not of Hispanic Origin
(931) 4. Hispanic
(932) 5. White, not of Hispanic Origin
(933) 6. Other

6. Your sex is:

(934) 1. Male
(935) 2. Female

7. Your highest educational level obtained was:

(936) 1. Non high school graduate
(937) 2. High School graduate or GED
(938) 3. Some college work
(939) 4. Backelor's degree
(940) 5. Some graduate work
(941) 6. Master's degree
(942) 7. Doctoral degree

8. Highest level of professional military education (residence or correspondence):

(943) 0. None or not applicable
(944) 1. NCO Orientation Course or USAF Supervisor Course (NCO Phase 1 or 2)
(945) 2. NCO Leadership School (NCO Phase 3)
(946) 3. NCO Academy (Phase 4)
(947) 4. Senior NGO Academy (Phase 5)
(948) 5. Squadron Officer School
(949) 6. Intermediate Service School (Officer)
(950) 7. Senior Service School (Officer) (i.e., Air War College)

9. How many people do you directly supervise (i.e., those you write performance reports for)

(951) 1. None
(952) 2. 1 to 2
(953) 3. 3 to 5
(954) 4. 6 to 8
(955) 5. 9 to 12
(956) 6. 13 to 20
(957) 7. 21 or more

10. Does your supervisor actually write your performance report?

(958) 1. Yes
(959) 2. No

11. Your work requires you to work primarily:

(960) 1. Alone
(961) 2. With one or two people
(962) 3. As a small group team member
(963) 4. As a large group team member (6 or more people)
(964) 5. Other

12. How stable are your work hours?

(965) 1. Highly Stable – Routine 8 hours a day
(966) 2. Very Stable – Nearly routine 8 hour day
(967) 3. Moderately Stable – Shift work which periodically changes
(968) 4. Slightly Unstable – Irregular working hours
(969) 5. Highly Unstable – Frequent TDYs, frequently on call

13. Your job requires how much communication between workers?

(970) 1. Very little
(971) 2. Little
(972) 3. Moderate
(973) 4. Very frequent
(974) 5. Almost continuous

14. To what extent in your work group are group meetings used to solve problems and establish goals and objectives?

(975) 1. None
(976) 2. Occasionally
(977) 3. About half the time
(978) 4. Almost totally

15. Your work schedule is basically:

(979) 1. Shift work, usually days.
(980) 2. Shift work, usually swing shift.
(981) 3. Shift work, usually nights.
(982) 4. Shift work, usually days and nights.
(983) 5. Daily work only.
(984) 6. Crew schedule.
(985) 7. Other.

16. Which of the following best describes your career intentions?

(986) 1. To continue in the Air Force.
(987) 2. Will most likely continue in the Air Force.
(988) 3. May continue in the Air Force.
(989) 4. Planning to retire in the next 12 months.
(990) 5. Other

JOB INVENTORY

Instructions

Below are items which relate to your job. Read each statement carefully and then decide to what extent the statement is true of your job. Indicate the extent that the statement is true for your job by choosing the statement below which best represents your job.

1 = Not at all	5 = To a fairly large extent
2 = To a very little extent	6 = To a great extent
3 = To a little extent	7 = To a very great extent
4 = To a moderate extent	

Select the corresponding number for each question and enter it on the separate answer sheet.

PART I: THE JOB ITSELF

(201) 17. To what extent does your job require you to do many different things, using a variety of your talents and skills?

(202) 18. To what extent does your job involve doing a **whole** task or unit of work?

(203) 19. To what extent is your job significant, in that it affects others in some important way?

(204) 20. To what extent does your job provide an great deal of freedom and independence in scheduling your work and selecting your own procedures to accomplish it?

(205) 21. To what extent does just doing your job provide you with chances to find out how well you are doing?

(206) 22. To what extent do **additional duties** interfere with the performance of your primary job?

(207) 23. To what extent do you have adequate tools and equipment to accomplish your job?

(208) 24. To what extent is the amount of work space provided adequate?

(209) 25. To what extent does your job provide the chance to know for yourself when you do a good job; and to be responsible for your own work?

(210) 26. To what extent does doing your job well affect a lot of people?

(211) 27. To what extent does your job provide you with the chance to finish completely the piece of work you have begun?

(212) 28. To what extent does your job require you to use a number of complex skills?

(213) 29. To what extent does your job give you freedom to do your work as you see fit?

(214) 30. To what extent are you allowed to make the major decisions required to perform your job well?

(215) 31. To what extent are you proud of your job?

(216) 32. To what extent do you feel accountable to your supervisor in accomplishing your job?

(217) 33. To what extent do you know exactly what is expected of you in performing your job?

(218) 34. To what extent are your job performance goals difficult to accomplish?

(219) 35. To what extent are staff assistance visits helpful in achieving job performance?

(220) 36. To what extent are your job performance goals clear and specific?

(221) 37. To what extent are your job performance goals realistic?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent
5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

(222) 38. To what extent do you use Management Information Systems(e.g., Computer Printouts, reports, etc.) to make decisions in your job?

(223) 39. How much of your time is used for planning more than 6 months ahead?

(224) 40. How much of your time is used for weekly or monthly planning?

(225) 41. How much of your time is used for daily planning?

(226) 42. To what extent do you perform the same tasks repeatedly within a short period of time?

(227) 43. To what extent are you faced with the same type of problem on a weekly basis?

(228) 44. To what extent are tasks you perform easy to accomplish?

(229) 45. To what extent is planning modified to meet changing job related needs? Changing environment?

(230) 46. To what extent does your job keep you busy?

(231) 47. To what extent are the people affected by decisions asked for their ideas?

(232) 48. To what extent is the amount of information you get from other work groups adequate to meet your job needs?

(233) 49. To what extent do you know what the objectives of your organization are?

(234) 50. To what extent are you aware of promotion/advancement opportunities that affect you?

(235) 51. To what extent is your work group involved in establishing goals?

(236) 52. To what extent does your work group solve problems effectively?

(237) 53. To what extent does your work group perform effectively under pressure?

(238) 54. To what extent do coworkers in your work group maintain high standards of performance?

(239) 55. To what extent do you have the opportunity to progress up your career ladder?

(240) 56. To what extent are you being prepared to accept increased responsibility?

(241) 57. To what extent do people who perform well receive recognition?

(242) 58. To what extent do you feel adequately trained to perform your assigned tasks?

(243) 59. To what extent are you satisfied with your job?

(244) 60. To what extent does your work give you pride and feeling of self-worth?

(245) 61. To what extent does your supervisor provide the assistance you need to manage your work?

(246) 62. My supervisor asks for ideas before making decisions.

(247) 63. To what extent does your supervisor encourage the people in your work group to work as a team?

(248) 64. To what extent does your supervisor allow you to make decisions concerning your job?

Instructions

Below are statements which deal with job characteristics. Some of these may not be in your job now. However, read each statement below and choose the answer which best represents how much **you would like to have each characteristic in your job.**

In my job, I would like to have the **characteristics described:**

1 = A slight amount	5 = A large amount
2 = An average amount	6 = A very large amount
3 = A moderate amount	7 = An extremely large amount
4 = A fairly large amount	

(249) 65. Opportunities to have independence in my work.

(250) 66. A job that is meaningful.

(251) 67. The availability for personal growth in my job.

(252) 68. Opportunities in my work to use my skills.

(253) 69. Opportunities to perform a variety of tasks.

(254) 70. Opportunities in my work to learn new and exciting things.

(255) 71. A job in which tasks are repetitive.

(256) 72. Opportunities to keep busy in my work.

(257) 73. The opportunity to perform all tasks or jobs in my career field from time to time.

(258) 74. A job in which tasks are relatively easy to accomplish.

PERCEIVED PRODUCTIVITY

Instructions

The statements below deal with the output of your work group. For some jobs certain statements may not be applicable. Should this be the case for your work group, then you should select the **not applicable** statement coded "0" below. Indicate your agreement with the statement by selecting the answer which best represents your attitude concerning your work group.

0 = Not applicable	4 = Neither agree nor disagree
1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree

(259) 75. The **quantity** of output of your work group is very high.

(260) 76. The **quality** of output of your work group is very high.

(261) 77. When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an **outstanding** job in handling these situations.

(262) 78. There is a bottleneck in my organization that seriously affects the flow of work either to or from my work group.

(263) 79. Your work group is frequently involved in crash programs, short suspenses, schedule changes, etc.

0 = Not applicable
1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

(422) 101. My supervisor is approachable.
(423) 102. My supervisor tries to make the work more satisfying for group members.
(424) 103. My supervisor takes time to help me when needed.
(425) 104. My supervisor respects work group members' opinions in his decision making.
(426) 105. My supervisor asks members for their ideas on task improvements.
(427) 106. My supervisor is very interested in helping me resolve my problems.
(428) 107. My supervisor explains how my job contributes to the overall mission.
(429) 108. My supervisor helps to stimulate enthusiasm for the job.
(430) 109. My supervisor focuses on major goals.
(431) 110. My supervisor helps me set specific goals.
(432) 111. My supervisor is consistent in his managerial behavior.
(433) 112. My supervisor lets me know when I am doing a good job.
(434) 113. My supervisor lets me know when I am doing a poor job.
(435) 114. My supervisor always helps me improve my performance.
(436) 115. My supervisor insures that I get job related training when needed.
(437) 116. My job performance has improved due to feedback received from my supervisor.
(438) 117. My supervisor encourages ideas for improving procedures.
(439) 118. When I need technical advice I usually go to my supervisor.
(440) 119. My supervisor is an effective manager.
(441) 120. My supervisor keeps me informed of changes that affect my job.
(442) 121. My supervisor frequently gives me feedback on how well I am doing my job.
(443) 122. My supervisor usually supports my decisions.

ORGANIZATION CLIMATE INVENTORY

Instructions

Below are items which describe characteristics of your **organization**. Indicate your agreement by choosing the statement below which best represents your opinion concerning your organization.

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Select the corresponding number and enter it on the separate answer sheet.

(102) 123. Ideas developed by your work group are readily accepted by management personnel above your supervisor.

JOB SATISFACTION QUESTIONNAIRE

Instructions

The items below relate to your job or the Air Force as a profession. Indicate how satisfied or dissatisfied you are with each item. Choose the statement below which best describes your degree of satisfaction or dissatisfaction.

0 = Not applicable	4 = Neither satisfied or dissatisfied
1 = Extremely dissatisfied	5 = Slightly satisfied
2 = Moderately dissatisfied	6 = Moderately satisfied
3 = Slightly dissatisfied	7 = Extremely satisfied

(704) 146. **Information on Policies and Procedures**
The adequacy and availability of information on policies, such as promotion or other organization policies.

(705) 147. **Feeling of Helpfulness**
The chance to help people and improve their welfare through the performance of your job. The importance of your job performance to the welfare of others.

(706) 148. **Control of Others (Non-Supervisory)**
The chance to tell others what to do. The control your job gives you over material.

(707) 149. **Characteristics of the Local Area**
The geographical area in which you work, weather in the local area, recreational opportunities available, and the size of the surrounding community.

(708) 150. **Social Contact**
Opportunity to meet new people, the amount and the meaningfulness of social contacts required by the job.

(709) 151. **Co-Worker Relationships**
Your amount of effort compared to the effort of your co-workers, the extent to which your co-workers share the load, and the spirit of teamwork which exists between your co-workers.

(710) 152. **Family Attitude Toward Job**
The recognition and the pride your family has in the work you do.

(711) 153. **On-the-Job Training (OJT)**
The OJT instructional methods and instructors' competence.

(712) 154. **Technical Training (Other then OJT)**
The technical training you have received to perform your current job.

(713) 155. **Moral Acceptability of Job**
The chance to do things not violating your sense of "right and wrong."

(714) 156. **Self-Improvement Opportunities**
The educational and recreational opportunities provided in the surrounding community, and the opportunity provided by the Air Force for self-improvement education.

(715) 157. **Verbal and Written Communication**
The amount of required telephone communication and required paperwork in your job.

(716) 158. **Work Itself**
The challenge, interest, importance, variety, and feelings of accomplishment you receive from your work.

SELECTED BIBLIOGRAPHY

REFERENCES CITED

Albanese, Robert. Managing: Toward Accountability for Performance. Homewood: Richard D. Irwin, Inc., 1978.

Basil, Douglas C. and Curtis W. Cook. The Management of Change. New York: McGraw-Hill Book Company, 1974.

Bennis, Warren G. Organizational Development: Its Nature, Origins, and Prospects. Reading: Addison-Wesley Publishing Company, Inc., 1969.

_____. Changing Organizations. New York: McGraw-Hill Book Company, 1966.

_____. "A Funny Thing Happened on the Way to the Future," American Psychologist, 25(7):595-608 (1970).

Blake, R. R. and J. S. Mouton. The Managerial Grid. Houston: Gulf Publishing Company, 1964.

Blau, Peter M. and W. Richard Scott. Formal Organizations: A Comparative Analysis. San Francisco: Chandler Publishing Company, 1962.

Bowers, David G. Systems of Organization. Ann Arbor: University of Michigan Press, 1976.

_____ and J. L. Franklin. Survey Guided Development I: Data Based Organization Change. LaJolla CA: University Assoc., Inc., 1977.

_____. "Survey Guided Development: Using Human Resources Measurement in Organizational Change," Journal of Contemporary Business, 1 (1):43-55 (1972).

_____ and S. E. Seashore. "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly, 11(11):238-263 (1966).

Burke, W. Warner. Current Issues and Strategies in Organization Development. New York: Human Sciences Press, 1977.

Burns, Tom and G. M. Stalker. The Management of Innovation. London: Tavistock Publications, 1961.

Campbell, John P. "Contribution Research Can Make in Understanding Organizational Effectiveness," Organization and Administrative Sciences, 7(1-2:29-45 (1976).

Carter, L. F. and M. Nixon. "An Investigation of the Relationships Between Four Criteria of Leadership Ability for Three Different Tasks," Journal of Psychology, 27: 245-261 (1949).

Chandler, A. D. Jr. Strategy and Structure. Cambridge: MIT Press, 1962.

Churchman, C. West. The Systems Approach. New York: Dalacorte Press, 1968.

Chin, Robert. "The Utility of Systems Models and Development Models for Practioners," The Planning of Change, edited by Warren G. Bennis and others, New York: Holt, Rinehart and Winston Inc., 1961.

Cronbach, L. J. "Coefficient Alpha and the Internal Structure of Tests," Psychometrika, 1b(3):297-334 (1951).

Dubin, R. "Supervision and Productivity: Empirical Findings and Theoretical Considerations," Leadership and Productivity: Some Facts of Industrial Life, edited by L. Broom, San Francisco: Chandler Publishing Company, 1965.

_____. "Organizational Effectiveness: Some Dilemmas of Perspective," Organization and Administrative Sciences, 7(1-2):7-13 (1976).

Duncan, Robert B. "Characteristics of Organizational Environmental Uncertainty," Administrative Science Quarterly, 17(3):313-327 (1972).

Emery, F. E. and E. L. Trist. "The Causal Texture of Organizational Environments," Human Relations, 18(1): 21-31 (1965).

Etzioni, Amitai. Modern Organizations. Englewood Cliffs NJ: Prentice Hall, Inc., 1964.

Everitt, B. S. Cluster Analysis. London: Heinerman Press, 1974.

_____. "Cluster Analysis," Exploring Data Structure, edited by C. A. O'Muireheartaigh and C. Payne, New York: John Wiley and Sons, 1977.

Fiedler, F. E. A Theory of Leadership Effectiveness. New York: McGraw-Hill Book Company, 1967.

Fleishman, Edwin A. "The Leadership Opinions Questionnaire," Leader Behavior and Its Description and Management, edited by Ralph M. Stogdill and A. E. Cooms, Columbus: Bureau of Business Research, Ohio State University, 1957.

Forehand, G. A. and B. H. Gilmer. "Environmental Variations in Studies of Organization Behavior," Psychological Bulletin, 62(6):361-381 (1964).

French, Wendell L. and Cecil H. Bell, Jr. Organizational Development (Second Edition). Englewood Cliffs NJ: Prentice-Hall, Inc., 1978.

Frohman, M. A., J. Sashkin, and M. J. Kavanagh. "Action Research as Applied to Organization Development," Organization and Administrative Sciences, 7(1-2):129-142 (1976).

Hackman, J. R. and others. "A New Strategy for Job Enrichment," California Management Review, 17(4):57-71 (1975).

Hall, Richard H. "The Concept of Bureaucracy: An Empirical Assessment," American Journal of Sociology 69(1):32-40 (1963).

_____. Organizations Structure and Process. Englewood Cliffs NJ: Prentice-Hall, Inc., 1972.

Hauser, D. L., et al. Survey-Guided Development II: A Manual for Consultants. La Jolla CA: University Assoc., Inc., 1977.

Hays, William L. Statistics for Psychologists. New York: Holt, Rinehart and Winston, Inc., 1963.

Helwig, Jane T. and Kathryn A. Council. SAS Users Guide, 1979 Edition. Raleigh: SAS Institute, Inc., 1979.

Hendrix, William H. Contingency Approaches to Leadership: A Review and Synthesis (AFHRL-TR-79-17). Brooks AFB TX: Occupation and Manpower Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, 1976.

_____. Organizational Assessment Indicies of Effectiveness (AFHRL-TR-79-46). Brooks AFB TX: Occupation and Manpower Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, 1979.

_____ and Vicki B. Halverson. Organizational Survey Assessment Package for Air Force Organizations (AFHRL-TR-78-93). Brooks AFB TX: Occupation and Manpower Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, 1979a.

_____. Situational Factor Identification in Air Force Organizations (AFHRL-TR-79-10). Brooks AFB TX: Occupation and Manpower Research Division, Air Force Human Resources Laboratory, Air Force Systems Command, 1979b.

Hersey, P. and K. H. Blanchard. Management of Organizational Behavior: Utilizing Human Resources (Second Edition). Englewood Cliffs NJ: Prentice-Hall, Inc., 1972.

Hickson, D. J., D. S. Pugh, and D. C. Pheysey. "Operations Technology and Organizational Structure: An Empirical Reappraisal," Administrative Science Quarterly, 14(3): 321-397 (1969).

House, Robert J. "A Path Goal Theory of Leader Effectiveness," Administrative Science Quarterly, 16(3):321-338 (1971).

Huse, Edgar F. The Modern Manager. St Paul: West Publishing Company, 1979.

Johnson, R. A., F. E. Kast, and J. E. Rosenzweig. The Theory and Management of Systems (Second Edition). New York: McGraw-Hill Book Company, 1967.

Kast, F. E. and J. E. Rosenzweig. Contingency Views of Organization and Management (Third Edition). Palo Alto: Science Research Assoc., Inc., 1978.

Katz, David and R. L. Kahn. The Social Psychology of Organizations. New York: John Wiley and Sons, 1966.

Lawrence, Paul R. and Jay W. Lorsch. Organization and Environment: Managing Differentiation and Integration. Cambridge: Harvard Graduate School of Business Administration, 1967.

Lewin, Kurt, R. Lippit, and R. K. White. "Patterns of Agressive Behavior in Experimentally Created Social Climates," Journal of Social Psychology, 10:271-299 (1939).

Likert, Rensis. The Human Organization. New York: McGraw-Hill Book Company, 1967.

LMDC. The Commanders Guide to Management Consultation Service. Pamplet, Director of Management Consultation, Leadership and Management Development Center, Maxwell Air Force Base AL, 1979.

Lorsch, J. W. and P. R. Lawerence. Studies in Organization Design. Homewood: Richard D. Irwin, Inc., 1970.

Luchsinger, Vincent P. and V. Thomas Dock. "Organizational Systems," MIS: A Managerial Perspective, edited by Thomas V. Dock, Vincent P. Luchsinger and William R. Cornette. Chicago: Science Research Associates, Inc., 1977.

Luthans, F. Introduction to Management: A Contingency Approach. New York: McGraw-Hill Book Company, 1976.

Mahoney, T. and P. Frost. "The Role of Technology in Models of Organizational Effectiveness," Organizational Behavior and Human Performance, 11(1):122-138 (1974).

Mann, F. C. "Toward an Understanding of the Leadership Role in Formal Organizations," in R. Dubin and others, eds., Leadership and Productivity. San Francisco: Chandler Publishing Company, 1965.

Margulies, N. and A. P. Raia. Conceptual Foundations of Organizational Development. New York: McGraw-Hill Book Company, 1978.

_____. Organizational Development: Values, Process, and Technology. New York: McGraw-Hill Book Company, 1971.

Margulies, Newton and John Wallace. Organizational Change: Techniques and Applications. Glenview: Scott-Forseman Company, 1973.

McNichols, Charles W. "ACLUS - An Agglomerative Clustering Algorithm." Unpublished Class Handout, Air Force School of Engineering, Wright-Patterson Air Force Base OH, 1978.

_____. "Applied Multivariate Data Analysis Course Notes." Unpublished Class Handout, Air Force School of Engineering, Wright-Patterson Air Force Base OH, 1979.

Mink, Oscar G., J. M. Shultz, and Barbara P. Mink. Developing and Managing Open Organizations. Auston: Learning Concepts, 1979.

Nadler, David A. Feedback and Organization Development: Using Data Based Methods. Reading: Addison-Wesley Publishing Company, 1977.

Neter, John and William Wasserman. Applied Linear Statistical Models. Homewood: Richard D. Irwin, Inc., 1974.

Newstrom, J., W. Reif, and R. Monczka. A Contingency Approach to Management: Readings. New York: McGraw-Hill Book Company, 1975.

Nie, Norman and others. Statistical Package for the Social Sciences (Second Edition). New York: McGraw-Hill Book Company, 1975.

Nunnally, Jum C. Psychometric Theory. New York: McGraw-Hill Book Company, 1967.

Osborn, R. N. and J. G. Hunt. "Environment and Organizational Effectiveness," Administrative Science Quarterly, 19(2):231-246 (1974).

Perrow, Charles. "The Analysis of Goals in Complex Organizations," American Sociological Review, 26(6):854-866 (1961).

Price, John L. Organizational Effectiveness: An Inventory of Propositions. Homewood: Richard D. Irwin, Inc., 1968.

_____. "The Study of Organizational Effectiveness," Sociological Quarterly, 13(1):3-15 (1972).

Reddin, W. J. Managerial Effectiveness. New York: McGraw-Hill Book Company, 1970.

_____. "The 3-D Management Style Theory: A Typology Based on Task and Relationship Orientations," Training and Development Journal, 21(4):8-17 (1967).

Schein, V. E. and L. E. Greiner. "Can Organization Development be Fine-Tuned to Bureaucracies?" Organizational Dynamics, 5(3):48-61 (1977).

Schoderbek, Charles G., Peter P. Schoderbek, and Asterios G. Kefalas. Management Systems: Conceptual Considerations (Revised Edition). Dallas: Business Publications, Inc., 1980.

Scott, W. G. "Organization Theory: An Overview and an Appraisal," Journal of the Academy of Management, 4(1): 7-26 (1961).

Scott, W. Richard. "Effectiveness of Organizational Effectiveness Studies," in Paul S. Goodman, Johannes M. Pennings, and assoc., eds., New Perspectives on Organizational Effectiveness. San Francisco: Josey-Bass Publishers, 1977.

Steers, Richard M. Organizational Effectiveness: A Behavioral View. Santa Monica: Goodyear Publishing Company, Inc., 1977.

Stogdill, R. M. "Personal Factors Associated with Leadership: A Survey of Literature," Journal of Psychology, 25:35-71 (1948).

_____. Individual Behavior and Group Achievement. New York: Oxford University Press, 1959.

Stone, Eugene F. Research Methods in Organizational Behavior. Santa Monica: Goodyear Publishing Company, Inc., 1978.

Szilagyi, Jr., Andrew D. and Marc J. Wallace, Jr. Organizational Behavior and Performance (Second edition). Santa Monica: Goodyear Publishing Company, Inc., 1980.

Tannenbaum, R. and W. H. Schmidt. "How To Choose a Leadership Pattern," Harvard Business Review, 51(3):162-180 (1973).

Terreberry, Shirley. "The Evaluation of Organizational Environments," Administrative Science Quarterly, 12(1): 590-613 (1968).

Toffler, Alvin. Future Shock. New York: Random House, Inc., 1971.

Umstot, Dennis D. "Organization Development Technology and the Military: A Surprising Merger?" Academy of Management Review 5(2):189-201 (1980).

Warren, James Ross. "Diagnosis of the Potential for Organizational Improvement," Personnel Journal, 56(6):302-304 (1977).

Wiggins, Jerry S. Personality and Prediction: Principles of Personality Assessment. Reading: Addison-Wesley Publishing Company, 1973.

Wilkerson, Lt. Colonel David A. Director Research and Analysis, Leadership Management and Development Center (LMDC/AN). Maxwell AFB AL. Telephone Interview, June 1980.

Wofford, J. C. "Factor Analysis of Managerial Behavioral Variables," Journal of Applied Psychology, 54(2):169-173 (1970).

_____. "Managerial Behavior, Situational Factors, and Productivity and Morale," Administrative Science Quarterly, 16(1):10-17 (1971).

Woodward, J. Industrial Organization: Theory and Practice. London: Oxford University Press, 1965.

_____. Management and Technology. London: Her Majesty's Stationary Office, 1958.

Yuchtman, Ephrain and Stanley Seashore. "A System Resource Approach to Organizational Effectiveness," American Sociological Review, 32(6):891-903 (1967).

Yukl, G. "Toward a Behavioral Theory of Leadership," Organizational Behavioral and Human Performance, 6(4): 414-440 (1971).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